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DATA ON USSR EXTRACTIVE INDUSTRIES

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I. CHEMICAL INDUSTRY

General

USSR CAPITAL INVESTMENTS IN CHEMICAL INDUSTRY TO INCREASE -- Moscow, Molodoy Kommunist, No 2, Feb 58, p 103

In 1958, the volume of capital investment in the USSR chemical industry will be increased by 2.5 billion rubles, or 53.6 percent, over 1957. During 1958, there will be a widely increased production of plastics, synthetic resins, and synthetic fibers. The greater use of plastics in machine building will result in a sharp reduction in labor costs, reduced weight of products, and a considerable saving in nonferrous metals. The use of synthetic resins in casting production will reduce the expenditure of metal one fifth and of molding materials to one seventh or one eighth the old level, and will increase labor productivity one third. Caprone cord, used instead of viscose cord, will reduce the expenditure of rubber in tire manufacture 15 percent and will extend the period of service more than one third. The output of wool fabrics will be increased 30 percent if synthetic fibers are added to the wool material.

During 1958, the volume of work on the construction of plastics enterprises will be increased 150 percent; on synthetic fiber enterprises, 75 percent; and on synthetic rubber enterprises, 48 percent.

Moscow, Agitator, No 5, Mar 58, pp 21-23

The over-all volume of capital investment in the USSR chemical industry for 1958 has been increased 54 percent over 1957; and investment in the plastics, artificial and synthetic fiber, and synthetic rubber industries has been increased 70 percent.

In 1958, the industry has been given the task of speeding up the construction and expansion of several synthetic rubber plants, 23 artificial fiber enterprises, 5 synthetic alcohol plants, and 10 tire plants.

KAZAKH CAPITAL INVESTMENTS TO INCREASE IN 1958 -- Alma-Ata, Kazakhstanskaya Pravda, 25 Jan 58

The volume of gross production in the chemical industry of the Kazakh SSR will be increased 5.1 percent in 1958. The production of sulfuric acid will be increased 2.4 percent, calcium carbide 2.5 percent, and acetic acid 2.4 percent.

Capital investment will be increased 77.3 percent over 1957.

USSR SECOND TO US IN CHEMICAL PRODUCTION -- Moscow, Trud, 4 Feb 58

The USSR is now second in the world to the US in chemical production but still lags behind the Americans in the output of several important types of chemical products. -- V. Fridenberg, M. Sc. (Econ.)

[Comment: An abridged version of this article appears in the Daily Review of the Soviet Press (published by Soviet Information Bureau), 4 February 1958, part II, p. 4.]

Agricultural Chemicals

USSR FERTILIZER PRODUCTION TO INCREASE -- Moscow, Agitator, No 5, Mar 58, pp 21-23

After the September Plenum of the Central Committee CPSU in 1953, the production of inorganic fertilizers rose 63 percent by 1957 and reached almost 11 million tons. This, however, is still small. According to the decree of the 9th Session of the Supreme Soviet USSR on the development of the national economy, in 1958, it is planned to increase the capital investment for the construction of enterprises for inorganic fertilizer production by 40 percent over 1957. During 1958, construction will be started on a superphosphate plant in Azerbaydzhan and a large plant for concentrated inorganic fertilizer on the Volga. The construction of nitrogen fertilizer plant in the south of the USSR will also be speeded up. This plant will operate on the basis of natural gas. The production of apatite concentrate on the Kola Peninsula will also be increased.

SHORTCOMINGS IN USSR FERTILIZER PRODUCTION -- Moscow, Izvestiya, 16 Jan 58

The Soviet Union is in a very favorable position for the development of inorganic fertilizer production. The sources of raw materials are large. In reserves of phosphorites and potassium salts the USSR holds first place in the world. These rich natural resources must rapidly be put to use to satisfy the needs of the people.

During the years of the 5-year plans, many phosphorus fertilizer enterprises have been built in the USSR, but not all of them are working at full capacity, in most cases because of a lack of apatite concentrates. Meanwhile, the opportunities for increasing the output of apatite fertilizers on the Kola Peninsula are poorly utilized. Because of the lack of the required quantity of ore the Kirovskiy Apatite-Nepheline Factory is working on a reduced production schedule. The management of the "Apatit" Combine concerns itself little about building up the capacities of its

mines. Construction of the Yuksporskiy and Rasvumchorrskiy mines as well as a second apatite-nepheline factory is being delayed; reconstruction of the concentration plant is being held up; and modernization of equipment in existing enterprises moves along very slowly.

The Murmanskiy Sovnarkhoz will have the capability in the next few years to increase the extraction of apatites 100-150 percent. To do this, the production capacities of the combine must be expanded rapidly.

The output of inorganic fertilizers is often held back because the chemical industry is only slowly developing the production of sulfuric acid. This is inexcusable in a country which has very rich deposits of natural sulfur and copper sulfide ores. The USSR also has a considerable amount of sulfur-containing gases.

Little is being done to expand potassium fertilizer production. So far, the rich Starobinskoye potassium salt deposit in Belorussia, discovered several years ago, has not been worked. The construction of a large potassium combine in the republic is being intolerably delayed.

It is regrettable that little attention is paid in the USSR to the quality and variety of inorganic fertilizers at enterprises of the chemical industry. Of over 4 million tons of superphosphate put out for the agricultural segment of the economy during 1957, only one fourth was of the granulated variety.

The Ministry of Chemical Industry has made a serious blunder in holding back on the construction of granulating shops at the Sumi and Samarkand superphosphate plants and the Estonian combine at Maardu. The interests of the country demand the rapid construction of these shops and the organization of granulated superphosphate production in all the new enterprises.

Agricultural workers rightfully complain about the low quality of the superphosphate. This applies in particular to the superphosphate put out in Central Asia from the Kara-Tau phosphorites. These contain little nutritious substances and are extremely damp.

It is intolerable to put up with the uneconomical methods of transporting and storing fertilizers in the USSR. Statistics show that the waste of superphosphate because of slipshod storage and violation of transport regulations sometimes amounts to 15-25 percent. Thousands of valuable inorganic fertilizer lie under the open sky near the stations for long periods of time.

According to data of the Ministry of Agriculture USSR, in the areas around the stations and in the warehouses of the country more than 600,000 tons of various kinds of inorganic fertilizer has now been accumulated. Not only the managements of the kolkhozes and sovkhoses but also the committee members of the local soviets and the agricultural organizations are to blame for this situation.

An increase in the production of inorganic fertilizers and an expansion of their use in relation to organic fertilizers are among the most important factors in bringing about a more rapid rate of increase in socialist agriculture.

PROGRESS REPORT ON CHARDZHOU PLANT CONSTRUCTION -- Ashkhabad, Turkmenskaya Iskra, 6 Feb 58

According to the plan approved by the Turkmen Sovnarkhoz, in 1958, the capital outlay on the Chardzhou Superphosphate Plant, now under construction, will amount to 12.5 million rubles, 3.5 million of which will be spent during the first quarter of this year. The first large project of the builders is the thermal electric power central, the first section of which should go on stream by 1 May 1958. Another part of the enterprise which should soon be in operation is the filtering station. The equipment is now being assembled here. After preliminary tests the filtering station should be in operation by 16 March.

In 1958, four two-story, 18-apartment buildings and six cottages will be ready for use. Several of these are already completed.

Basic Chemicals

CHEMICAL INDUSTRY IN FAR EAST -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 12 Jan 58

In the development of the chemical industry in the Far East, special importance is attached to the organization of sulfuric acid production, the raw materials for which are abundant (pyrrhotine tailings of the concentration plants, the native sulfur on the Kurile Islands and Kamchatka, etc.). Furthermore, on the basis of the very rich deposits of fluorite and datolite it will be possible to set up the production of hydrofluoric and boric acids and their salts, including boron fertilizers.

EFFORTS TO PREVENT FREEZING OF SULFUR PYRITES -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 31 Jan 58

The nonferrous metallurgical enterprises send sulfur flotation pyrites to the sulfuric acid plants with a moisture content of 3.8 percent. In the winter, pyrites with such a moisture content freeze. Unloading it from freight cars is very difficult and causes much time to be lost in transport. Furthermore, it increases costs. Whereas every ton of unfrozen pyrite costs one ruble to ship, every frozen ton costs 6 rubles. Since every winter about 530,000 tons of flotation pyrite is shipped and half of this is sent in a frozen state, this leads to an additional expenditure of 1.3 million rubles above what should be spent.

Specialists of the Voskresensk Chemical Combine and the Ural Scientific Research Chemical Institute have come to the conclusion that freezing of sulfur flotation pyrite can be prevented if its moisture content does not exceed 2.5 percent. Unfortunately, at the nonferrous metallurgical plants of the Sverdlovskiy Sovnarkhoz, who are basic suppliers of pyrite, the supplemental drying of the materials has not been introduced. -- Yu. Loman, Deputy Director, Neva Chemical Combine

Coke Chemicals and Petrochemicals

NEW STAVROPOL CHEMICAL COMPLEX -- Moscow, Sovetskaya Rossiya, 11 Jan 58

On the basis of the Stavropol natural gas deposit a complex of chemical industry enterprises is being created. Chief of these is the Nevinysskiy Nitrogen Fertilizer Plant. Construction of a large plant for the production of carbon black, useful in the production of rubber goods, is being completed. The creation of plants for the production of fabrics from artificial fibers and plastics plants is also contemplated.

Mineral Chemical Products

NEW PHOSPHORITE DEPOSITS -- Kishinev, Sovetskaya Moldaviya, 19 Jan 58

Deposits of phosphorites, suitable for the production of inorganic fertilizers, have been discovered near the village of Naslavcha, Atakskiy Rayon, Moldavian SSR.

NEW CHEMICAL COMBINE IN UKRAINE -- Kiev, Pravda Ukrainy, 24 Jan 58

A giant of the chemical industry is being built in the Transcarpathian region at the new city of Novyy Rozdol, Drogobychskaya Oblast. To the right of a large lake, created by the builders of "Rozdolstroy" Trust, the structure of the sulfur combine, the thermal electric power station, and the framework of multistory apartment dwellings are rising.

The city is growing and prospering. More than 15,000 square meters of living space has already been made available and 12,000 more will be constructed in 1958. Other structures are also being put up. In this new city, as has been stated earlier in Pravda Ukrainy, will be built the largest sulfur combine of the Soviet Union.

Competitions in honor of the elections to the Supreme Soviet USSR are being set up not only in the sulfur mine but also in each of the construction projects and in all the shops of the combine.

Kiev, Pravda Ukrainy, 29 Jan 58

On the basis of rich, newly discovered deposits of natural sulfur in the Stanislavskiy Economic Region, the construction of a large sulfur combine is being completed which will produce a large quantity of sulfur in 1959.

Paint and Varnish Products

NEW SUBSTITUTES FOR PIGMENTS -- Kiev, Pravda Ukrainy, 16 Jan 58

In the production of oil paints, various fillers are used instead of expensive pigments. The best of these are barite and talc, but there are no deposits of these minerals in the Ukrainian SSR.

During the last 2 years, V. Sher, V. Dorokhova, V. Sirota, and I. Byalaya, directed by A. Polozova, chemists of the Central Scientific Experimental Laboratory of Ukrpromsovet (Ukrainian Industrial Council), have made tests on an oil paint filler pyrophyllite containing mainly alumina and terra rossa. Large reserves of this material are found in Ovruchskiy Rayon, Zhitomirskaya Oblast.

The pale rose pyrophyllite has proved to be a valuable substitute for barite. It contains no water-soluble salts and is stable in the presence of sunlight and air. Paints which employ the new filler are considerably less expensive. It can be used in the production of a majority of pigmented oil paints. It is currently being produced according to the new method by the Kiev Paint and Varnish Artel "Intrud."

Rubber and Rubber Products

FOOD PRODUCTS STILL MAIN RAW MATERIAL FOR RUBBER -- Moscow, Agitator, No 5, Mar 58, p 22

In 1957, more than 60 percent of all the synthetic rubber produced in the Soviet Union was still obtained from edible raw materials.

SECOND SECTION OF SUMGAI T PLANT COMPLETED; THIRD SECTION STARTED -- Moscow, Trud, 4 Feb 58

At the end of 1957, the second section of the large plant for the production of synthetic alcohol and rubber went on stream in Sumgait, Azerbaydzhan SSR. Now the construction of the third section is well under way at the plant. When it goes into production, the output of rubber at Sumgait will be doubled.

(The article is accompanied by a view of the installation for the hydrogenation of butane.)

NEW TYPE MOTOR VEHICLE TIRE -- Moscow, Sovetskaya Rossiya, 9 Jan 58

Two motor vehicles of the same make speed along the highway. Now they turn into a field covered with snow. One of the machines stops immediately while the other continues to move ahead. The skidding vehicle is equipped with regular tires, the second has tires of a new type in which the air pressure can be regulated. These tires are characterized by very high roadability.

Near the driver in the cab is a device for regulating the air pressure. This device can reduce or increase the air pressure of the tire while the wheel is turning. The vehicle need not be standing still.

When the vehicle is moving along a road with a good surface, the driver maintains a normal pressure in the tire. But when he drives onto a bad road, the driver reduces the air pressure. The tire becomes more resilient, the area in contact with the road surface is enlarged, and, consequently, the pressure applied to the ground is reduced. Machines equipped with these tires easily traverse swampy, sandy, and snow-covered areas.

The new tires are now being manufactured by the Yaroslavl Tire Plant. The enterprise has already put out an experimental consignment of the new product.

YAROSLAVL PLANT PRODUCES AIRCRAFT TIRES -- Moscow, Trud, 14 Jan 58

In addition to regular output, tires for the aircraft TU-104 and TU-114 are manufactured at the Yaroslavl Tire Plant.

Synthetic and Artificial Fibers

PROGRESS IN USSR FIBER PRODUCTION -- Moscow, Planovoye Khozyaystvo, No 1, Jan 58, pp 14-23

In the plans for the period 1959-1965, great attention will be paid to developing the production of artificial and synthetic fibers which are so important for textile output as well as for a number of other types of production.

Great strides have been made in the Soviet Union in the development of the fiber industry. During the period 1928-1957, output has increased from 200 to 149,000 tons a year, and in recent years, the qualitative characteristics of chemical fibers have been much improved and the variety increased. Present output still does not fulfill all the needs of the country completely.

At present, the chief variety of chemical fibers manufactured in the Soviet Union is viscose fiber, which makes up 84 percent of all such fiber produced in the country. In 1956, the share of viscose fiber in national production amounted to 80.7 percent. Of this volume 61 percent was staple fiber, 24.7 percent was textile fabric, and 14.3 percent was used for cord production.

The basic varieties of synthetic fibers in the USSR at present and in future years will be the polyamides -- caprone and anid (nylon). The production of these fibers has been completely mastered by Soviet industry and they are widely used in the production of consumer goods.

The further development of artificial and synthetic fiber production requires a significant expansion of the production base, i.e., the construction of a series of new plants of this branch of industry. The majority of chemical fiber enterprises now active are mixed enterprises, i.e., they either process fiber of various kinds, artificial or synthetic, or they process fiber of the same kind but of different assortment, filament fibers and staple or cord and staple. Practice has shown that the inclusion of various types of production in an enterprise leads to unnecessary complications because it requires the construction of several structures of relatively small dimensions and this increases costs and extends the period required for construction.

During the postwar period, there has been a tendency to build chemical fiber plants mainly in the new eastern regions of the USSR which have large water, electric power, and raw material resources. The raw material requirements are particularly heavy for viscose fiber production, each ton of which requires an expenditure of about 4.5 tons of various types of raw material, including about 2 tons of material brought in freight cars and 2.5 tons in tank cars. In 1958, it is planned to increase the volume of work on the construction of artificial fiber enterprises by 75 percent over 1957.

Miscellaneous

RAW MATERIAL BASE FOR HYDROLYSIS PLANTS EXPANDED -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 31 Jan 58

The basic raw material for the hydrolysis plants of Uzbekistan are cottonseed pods, but this is insufficient for the increased growth of the industry.

After careful experimentation, a group of scientific workers of Uzbekistan has proposed the use of cotton plant stalks instead of the pods to produce alcohol, furfural, and polyatomic alcohols. In terms of raw material the yield of sugars in this case is double that of the cottonseed pods.

The Institute for the Chemistry of Plant Raw Materials and Cotton of the Academy of Sciences Uzbek SSR and the natural compounds laboratory of the Central Asiatic State University imeni Lenin are conducting experiments on the chemical nature of solutions obtained through the hydrolysis of cotton stalks and are exploring the possibility for the industrial use of aqueous and acid extracts. The Fergana Hydrolysis Plant is making tests on reeds, anabasine, brome grass jute waste [kosty dzhuta], and other agricultural and industrial wastes for the production of alcohol, furfural, and polyatomic alcohols. Additional means have been granted for expanding the plant and equipping its laboratory with the newest apparatuses and equipment in order to begin the functioning of the experimental base for the hydrolysis industry of the south.

II. PETROLEUM AND GAS INDUSTRIES

USSR in General

TOP OFFICIAL REPORTS 1957 PRODUCTION RESULTS AND 1958 PLANS -- Baku, Bakinskiy Robochiy, 11 Jan 58

[Comment: The following is from an article by V. A. Kalamkarov, chief of the Department of Petroleum and Gas Industry of Gosplan USSR. Kalamkarov was formerly Deputy Minister of Petroleum Industry USSR before the ministry was abolished in mid-1957.]

USSR crude oil production in 1957 surpassed 1956 output by 14.5 million tons. More than 80 percent of the new wells were drilled with the turbodrill. Natural gas extraction reached 18.5 billion cubic meters, or 6.9 billion more than in 1956. The goal for 1958 is 29.4 billion cubic meters, or nearly 11 billion more than in 1957.

Most of the 1958 oil output is scheduled to come from the RSFSR, particularly the areas along the Volga River, the Urals, and North Caucasus. However, output is to be increased considerably also in Azerbaydzhan and Central Asia.

Exploration for oil and gas is to be increased 33 percent above the 1957 level.

1957 DRILLING GOALS SURPASSED FOR FIRST TIME IN MANY YEARS -- Moscow, Neftyanoye Khozyaystvo, No 2, Feb 58, pp 1-3

The USSR surpassed its 1957 goal for crude oil extraction. Output was 1.3 million tons more than planned. It was 15.2 million tons higher than in 1956 compared with a 13 million-ton increase in 1956 over 1955 output. Of the 1957 increase, 13.3 million tons came from the RSFSR, where the greatest increase was made in the Tatarskaya ASSR, followed by Kuybyshevskaya Oblast, and the Bashkirskaya ASSR.

The RSFSR and the Azerbaydzhan SSR accounted for 94 percent of the 1957 USSR production, with the RSFSR accounting for about 66 percent of the output. The remaining 6 percent came from Turkmenistan, Kazakhstan, Uzbekistan, Ukraine, and the other union republics.

The rise in extraction in all of the petroleum-producing areas resulted from surpassing the developmental drilling goal, putting new wells on stream, further introduction of pressure maintenance, employment of intensified methods of extraction such as hydraulic fracturing, torpedoing, and acid treatment, and from improvements in well repairs in the old Azerbaydzhan fields.

The discovery of new petroleum deposits in Kuybyshevskaya, Permskaya, and Astrakhanskaya oblasts, Sakhalin Island, Stavropol'skiy Kray, Kalmyk-skaya Autonomous Oblast, Checheno-Ingushskaya ASSR, Eastern Ukraine, and Azerbaydzhan also contributed heavily.

Petroleum and gas reserves increased in the RSFSR, Ukraine, Azerbaydzhan, and other union republics as a result of increased geological and exploratory operations, especially the latter. During the year, 2.8 million meters of exploratory wells were drilled, or 24.4 percent more than in 1956.

In 1957, the goals for all types of drilling were surpassed throughout the USSR for the first time in many years. Drilling speeds rose considerably, especially in the Tatarskaya and Bashkirskaya ASSRs, Krasnodarskiy Kray, and Azerbaydzhan. Even Saratovskaya and Permskaya oblasts and the Western Ukraine, which heretofore lagged in the speed of drilling, gave a good account of themselves.

The oil-refining industry surpassed the goal for the production of light products. In addition, the eastern refineries expanded their output of such petroleum products as "Kalosh" gasoline, white alcohol, winter grade diesel fuel, and fleet mazut.

A notable achievement of the refining industry in 1957 was the increase in primary distillation and cracking capacity from present units with very little investment of funds and material resources. The greatest strides in this respect were made in the refineries in the Bashkirskaya ASSR and Kuybyshevskaya and Saratovskaya oblasts.

The 1958 exploratory drilling goal for petroleum and gas has been increased 29 percent over the 1957 level. Petroleum extraction is to increase 13.5 percent and gas 59 percent over the 1957 levels. The constant lag in construction of oil refineries and gas gasoline plants must be stopped and the construction of water- and salt-removing units at the oil fields must be ensured. A large number of refining and cracking units, lube oil, and paraffin shops must be put in operation, particularly in the refineries under the jurisdiction of the Omskiy, Stalingradskiy, Permskiy, Gor'kovskiy, Bashkirskiy, and Kuybyshevskiy sovnarkhozes.

EASTERN REGIONS TO SUPPLY OVER 75 PERCENT USSR OUTPUT -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 22 Jan 58

USSR crude oil output in 1957 was 14.4 million tons higher than in 1956. The industry produced 1,083,000 tons above its 1957 goal.

The increase in extraction resulted to a great extent from putting into commercial development promising new sites at Romashkino in the Tatarskaya ASSR, Shkapovo in the Bashkirskaya ASSR, and Mukhanovo in Kuybyshevskaya Oblast. These three deposits account for about 40 million tons a year.

Drilling with smaller width turbodrills speeded up putting new wells on stream. Partial use of the smaller drill has reduced the time for building up wells by 12-15 days and cut drilling costs 30 percent.

In 1958, the USSR plans to extract 13.7 percent more petroleum than in 1957. More than 75 percent of the 1958 output is to come from the eastern regions. To meet this goal, 3,572,000 meters of developmental wells and 3,711,000 meters of exploratory wells must be drilled. This drilling program will require the use of about 1,000 machines. Hundreds of derricks will go up at the Shkapovo, Aleksandrovka, and Serafimovka sites in the Bashkirskaya, ASSR, at the Pavlovka, Abdrakhomanovo, and Sulyevka sites in the Tatarskaya ASSR, at Karadag, Mishovdag, and Kyurovdag in Azerbaydzhan, and at Mukhanovo in Kuybyshevskaya Oblast.

Flowing wells are expected to account for 74 percent of the production. The volume of water pressuring in Tatariya rose to more than 100,000 cubic meters daily on 1 January 1958 from 83,000 cubic meters on 1 January 1957. It is expected that about 140 million cubic meters of water will be pumped in 1958 into the strata in Tatariya to promote oil flow. The problem is where to obtain the water.

In 1958, a total of 2,845 hydraulic fracturing jobs are scheduled, 1,080 of them in the eastern regions. To accomplish this goal, at least 45 heavy duty AN-500 pumps must be produced.

Oil refiners are called upon to increase primary and cracking capacity and the production of lube oils to nearly 5 times that of 1957 by means of putting new units into production. An atmospheric-vacuum still with an annual capacity of 2 million tons is supposed to go into operation in the east in 1958, the first time that such a unit will be put into operation in that region. A paraffin-removing unit using carbamide is to start operations at the Moscow Oil Refinery. New refining capacity is scheduled to become available in the Omsk and Kuybyshev areas.

CONFERENCE OF REPRESENTATIVES OF PETROLEUM ADMINISTRATIONS OF RSFSR --
Moscow, Neftyanoye Khozyaystvo, No 2, Feb 58, p 68

Representatives of petroleum enterprises of the economic councils in the RSFSR held a conference under the auspices of Gosplan RSFSR from 10 to 14 December 1957 on the subject of introducing new drilling equipment and mechanisms.

The conference was attended by representatives from administrations of petroleum and gas industries, economic councils in the RSFSR, petroleum and other departments of Gosplan RSFSR, from the State Institute for Designing Petroleum Machinery, All-Union Research and Development Institute on Turbodrilling, machine building plants, and scientific agencies of Moscow.

The conference was opened by M. A. Yevseyenko, deputy chairman of Gosplan RSFSR, who spoke about the problems facing the petroleum industry in the next 15 years. The industry is already expected to increase its petroleum output in 1965 to 400 million tons in comparison to the 98 million tons produced in 1957 and its volume of drilling to 18 million meters and more as compared with 5-5.5 million meters in 1957.

[Comment: Until the ministry was abolished in 1957, Yevseyenko was Minister of Petroleum Industry USSR, to which post he moved in late 1955 from Minister of Construction of Petroleum Industry Enterprises USSR to replace Nikolay Baybakov, who had been put in charge of the USSR long-range planning program. Prior to being petroleum construction minister, Yevseyenko was Deputy Minister of Petroleum Industry USSR.

The article on the conference provides the names and other data on USSR oil well-drilling equipment.]

OIL AND GAS INDUSTRIES OF RSFSR WILL BE DEVELOPED AT FAST PACE IN 1958 --
Moscow, Pravda, 29 Jan 58

Great importance is attached to the development of the oil and gas industries in the RSFSR this year.

[Comment: N. K. Baybakov, chairman of Gosplan RSFSR, reported on the state plan for the development of the RSFSR economy in 1958 to the Russian Republic Supreme Soviet. For excerpts of the article regarding plans for the oil and gas industries, see The Current Digest of the Soviet Press, Vol X, No 5, 12 March 1958, p 12.]

OIL FOUND IN MOLDAVIAN SSR -- Kishinev, Sovetskaya Moldaviya, 19 Jan 58

Geologists have discovered oil in the Budzhakskaya Steppe of the Moldavian SSR. A flowing oil well was brought in from a depth of 430 meters near the village of Valeny in the vicinity of Vulkaneshty. The well has an output of 3 tons a day. The crude oil contains a high percentage of light lube oils.

Derricks have covered the area around Vulkaneshty and geologists are setting the boundaries of the new deposit.

NEW REFINERY TO GO UP IN GOR'KOVSKAYA OBLAST -- Moscow, Sovetskaya Rossiya, 7 Jan 58

An oil refinery is being built in Kstovo, Gor'kovskaya Oblast. The refinery will obtain its crude oil by pipeline from Al'met'yevsk.

CONFERENCE HELD TO DISCUSS USE OF NATURAL GAS IN INDUSTRIAL FURNACES -- Moscow, Gazovaya Promyshlennost', No 1, Jan 58, p 52

An all-union conference was held 7-12 October 1957 in Stalingrad to discuss the use of natural gas in industrial furnaces. The conference was attended by 345 delegates from 43 cities in the USSR.

It was called by the Stalingrad Administration of the Scientific and Technical Society of the Power Industry, Section on Gasification of the society's Central Administration, and the Section on Industrial Furnaces of the society's Leningrad Administration.

PRODUCTION OF SHALE GAS INCREASES TREMENDOUSLY -- Tallin, Sovetskaya Estoniya, 11 Dec 57

Over 405 million cubic meters of gas was produced in 1956 from shale found in the Estonian SSR. This output compared with a figure of only 1.7 million in 1940.

The republic's Kokhtla Yarve Oil Shale Refining Combine has become the largest establishment of its kind in the world.

Ukraine

OIL AND GAS EXTRACTION TO INCREASE CONSIDERABLY -- Moscow, Neft' i Prirodnyy Gas Ukrainy (Petroleum and Natural Gas of the Ukraine), Moscow, Gos-
toptekhnizdat, (book by T. T. Gonta, et al), 1957, p 3

In 1956, the Ukraine extracted 761,800 tons of crude oil, or 43 percent more than in 1955. Natural gas extraction reached 4 billion cubic meters, or 36 percent more than the year before. In 1960, the republic is expected to extract 1.5 million tons of crude oil (amounting to 2.8 times the 1955 level) and 13 billion cubic meters of natural gas, nearly 4.5 times the 1955 level.

Gas lines are scheduled for construction from Shebelinka to Bryansk through Khar'kov, Kursk, and Orel; from Shebelinka to Odessa through Dnepropetrovsk, Zaporozh'ye, Nikopol', Kherson, and Nikolayev; from Dashava to Minsk with offsets to Vil'nyus and Riga; from Kosov to Chernovtsy, Rudki to Sambor, Taganrog to Zhdanov, and Taganrog to Amrosiyevka. The latter two lines are scheduled to transport gas from the Stavropol' fields.

In addition, construction is to start, during the period 1956-1960, of a large oil refinery which will obtain crude oil by pipeline from the areas along the Volga River.

NATURAL GAS FOUND IN KHAR'KOVSKAYA OBLAST -- Leningradskaya Pravda, 15 Jan 58

Izyum -- Geologists have discovered a commercial deposit of natural gas at Spevakovo, 10 kilometers from Izyum in Khar'kovskaya Oblast. The drillers brought in four wells. The output of each well ranges from 80,000 to 100,000 cubic meters per day.

GAS YIELD AT DASHAVA FIELD NEARLY TRIPLES IN 12 YEARS -- Moscow, Na Stroitel'stve Truboprovodov, 7 Nov 57

The Dashava Gas Field in the western Ukraine is now extracting nearly 3 times as much natural gas as 12 years ago (1945), when extraction was about 1.8 million cubic meters per day.

The gas from this field is supplied not only to the cities of L'vov, Stanislav, Droboych, and Borislav in the western Ukraine, but also to Kiev and Moscow. Up until this year, the Ukraine was the leading gas producer in the USSR but it has now been surpassed by the RSFSR.

Until a short time ago, the Dashava field was the only natural gas producer in the western Ukraine. Now natural gas is extracted at Kadobny, Kosov, and Grabovka in the western Ukraine. The gas industry in the western Ukraine is under the jurisdiction of the Stanislavskiy Sovnarkhoz, which has jurisdiction over industry not only in Stanislavskaya but also Drogobychskaya, Zakarpatskaya, and Chernovitskaya oblasts.

Caucasus

STAVROPOL'SKIY SOVNARKHOZ CHAIRMAN COMPLAINS ABOUT CONSTRUCTION -- Moscow, Sovetskaya Rossiya, 11 Jan 58

Stavropol'skiy Kray ranks first in explored gas reserves in the USSR. Some of the gas wells in the kray are the largest producers in the world. The quality of the gas is very high; it causes no corrosion nor does it require any special purification during processing into chemical products. Explored reserves in the kray make it possible to extract 12.6 billion cubic meters in 1960.

The first link of the projected dual Stavropol'-Moscow gas line was completed considerably ahead of schedule but the pace of construction on that link and the present second link could have been faster had the pipe arrived on time. The Kramatorsk, Chelyabinsk, and Khartsyzk pipe-rolling plants still fail to supply the pipe on time.

It would be logical to conclude that the main sector of a gas line construction project would be the first to obtain equipment and materials but the Main Administration of Gas Industry USSR has so arranged the operations of the supplying plants that the main Stavropol' sector is the last to obtain pipe. Much of the second link is completed and wells are ready to supply gas but they cannot do so because the main collecting point has not been finished.

Many of the operations are mechanized but the small diameter pipe must be set by hand because of the lack of cleaning and insulating machinery. The workers must clean the surface of the pipe with brick and prepare the insulating material by primitive means. There is an acute shortage of such machinery because of the fact that tens of cities are being prepared for using gas.

The builders must spend considerable time and labor on cleaning and insulating operations, jobs that could be done directly at the plants. When the weather is bad, these jobs cannot be performed in the field.

Something must be done to reorganize construction operations. At present, construction jobs are awarded to several organizations, each of which has subsidiaries in Stavropol', Rostov-na-Donu, or Moscow, and, if any disagreement arises between the supervisors, the dispute is referred to Moscow. The interdepartmental barriers only create greater problems. Quite frequently, one construction agency has machinery standing idle whereas another construction agency is short.

Any construction job is ordinarily started by first building roads and the supporting enterprises but the first link of the Stavropol'-Moscow gas line was put into operation even though there were no communications. Many of the supporting services were unprepared and the road in the main sector still has not been built. During unsuitable weather in the fall, one can travel only by tractor.

Construction will start soon of a gas line to Mineral'nyye Vody. The Main Administration of Gas Industry USSR should, without waiting for the principal work to start, allocate the necessary funds for the construction of roads, bridges, line communications, and homes for the line builders. -- S. Barabash, Chairman, Stavropol'skiy Sovnarkhoz

SHORTAGES, CONSTRUCTION DELAYS HOLD UP USE OF SECONDARY METHODS AT GROZNYI -- Moscow, Neftyanoye Khozyaystvo, No 2, Feb 58, p 66

The pressuring of gas, air, and water into the depleted horizons of the Malgobekneft', Oktyabr'neft', Gorskneft', and Starogrozneft' oil field administrations from 1944 to November 1957 resulted in the production of 2.5 million tons of petroleum, 1.4 million of it in the fields of the Malgobekneft' Oil Field Administration, where secondary recovery methods have been in use on a commercial scale for the past 13 years.

At present, 42 horizons are being subjected to pressuring, with 22,000 cubic meters of water and 278,000 cubic meters of gas and air pumped into them each day. The amount of petroleum extracted through the use of these methods has been constantly increasing. More than 400,000 tons were extracted in 1957 against 122,900 tons in 1950. Nearly 33 percent of the crude that is extracted in the above four oil field administrations comes from artificial pressuring.

Despite this, secondary recovery methods are used only to a limited extent in some areas because of delays in the construction of necessary installations, lack of knowledge of the input wells, and shortage of some of the necessary regulating and gaging fixtures.

The Technical and Economic Council of the Checheno-Ingushskiy Sovnarkhoz held a conference to expand the petroleum industry of this autonomous republic and devoted particular attention to the use of secondary recovery methods. It suggested to the sovnarkhoz the greater development of two horizons through one well simultaneously at the Starogrozneft' Oil Field Administration and thus reduce the volume of drilling and the amount of capital investments, to set up a plan for complete development of the lower seam by means of secondary recovery methods, and to drill in a few appraisal wells in 1958 to determine the actual amount of oil left. In the Malgobekneft' Oil Field Administration, water pressuring should be increased to 6,000-7,000 cubic meters per day by the end of 1960. Water pressuring should be started in 1958 at the Gudermes and Pravoberezhnoye deposits to increase extraction from these sites.

FORMER DEPUTY PETROLEUM MINISTER HEADS GROZNYI AREA ECONOMIC COUNCIL -- Moscow, Neftyanoye Khozyaystvo, No 2, Feb 58, p 66

Ryabchikov is chairman of the Checheno-Ingushskiy Sovnarkhoz.

[Comment: Ryabochikov formerly had been reported Deputy Minister of Petroleum Industry USSR in Literaturnaya Gazeta, 19 June 1954, and Na Stroitel'stve Truboprovodov, 29 March 1957. The Checheno-Ingushskaya ASSR is the new name for the former Groznenskaya Oblast, which replaced the autonomous republic in 1944 and then was replaced by it in 1957. The area embraces the Grozny oil producing region, one of the two oldest in the USSR. Until it was abolished in 1957 along with the oil ministry, the Grozneft' Petroleum Association operated in the region and was headed by S. Apriyatin, who became deputy chief of the newly organized Checheno-Ingushskiy Sovnarkhoz.]

OIL FOUND NEAR TBILISI, GEORGIA -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 10 Jan 58

An oil well with a daily output of 10-12 tons was brought in from a depth of 1,400 meters in the Samgorskaya Steppe not far from Tbilisi. The crude contains up to 90 percent light petroleum products.

The discovery resulted from long and persistent efforts of the prospectors who detected the presence of oil in the steppes at depths of 250-300 meters while drilling structural wells. Finding oil at these depths, they set up deep exploratory wells. Exploration will continue to contour the site soon.

Azerbaydzhan

DERRICK SET UP ON FIRST ALLUVIUM DAM IN CASPIAN SEA -- Vil'nyus, Sovetskaya Litva, 18 Jan 58

Baku -- The first offshore alluvium dam in the Caspian Sea has been set up not far from well No 105 at the Karadag Gas-Condensate Field. A derrick is going up on this dam to drill a well to a depth of 4,500 meters. Not far away, a second alluvium dam is about completed. These are the first such projects to have been set up in the Caspian to enable Baku drillers to drill offshore wells.

The construction of alluvium offshore dams was first started in Baku in mid-1957 and, since then, this new method of drilling offshore wells is being used more widely. An alluvium dam is being erected from the Apsheron Peninsula to Ostrov Peschanyy, the center of a new, large, offshore petroleum area.

All three projects were designed by the State Institute for Offshore Petroleum Planning.

Surveys are now under way at two locations where offshore dams are to be built. One of them, 1.5 kilometers long, will be built in Karadag. The other will be built 80 kilometers south of Baku at the promising site of Dashgil'.

GROUP-WELL DRILLING REDUCES COSTS AT OFFSHORE FIELDS -- Baku, Azerbaydzhanskoye Neftyanoye Khozyaystvo, No. 11, Nov 57, p 22-25

There are now nearly 4 times as many offshore sites on stream as there were in 1949. Among these are the Neftyaneye Kamni, Gryazevkaya Sopka, and Ostrov Peschanyy. At Neftyaneye Kamni, highly productive pools of petroleum have been established in the lower, middle, and upper divisions of the productive seam in the northeast wing of the fold.

In 1956, the turbodrill was employed in 71 percent of the drilling in the offshore sites. Grouped, sloped-directional drilling is used in all of the offshore sites. The ratio of this type of drilling in the over-all total at Neftyaneye Kamni has reached 70-80 percent of the wells completed.

With group-well drilling, the cost of a foundation is reduced considerably per well. With four wells grouped together, their average depth 1,200 meters, and the depth of the sea 21 meters, the cost of the foundation does not exceed 25 percent of the drilling costs. This cost is 21 percent with eight wells and 15 percent with 16 wells. Some of the groups are comprised of as many as 16-18 and even more wells.

About 50 percent of the sloped-directional wells which have been drilled recently deviate more than 300 meters from the well head. The average deviation from the depth varies within a range of 25-30 percent.

Pressure maintenance has been used at the offshore deposits since May 1951, when it was introduced into the PK layer of the Gyurgyany More deposit of the Artemneft' Oil Field Administration. This method of extraction was introduced during the period 1953-1954 at all of the sites of the Neftyanne Kammi deposit of the Gyurgyanneft' Oil Field Administration and, in 1955, into the PK and KS layers of the Banka Darvina deposit.

Gyurgyanneft' produces 85 percent of its petroleum by pressure maintenance. Its Neftyanne Kammi deposit is exploited completely by this method. This offshore sector accounts for more petroleum than any two producing centers in Azerbaydzhan. The results of operations for 1956 at this deposit indicate that approximately 20-25 percent more water was pumped into the strata than the volume of oil brought to the surface. For each additional ton of petroleum extracted, 2.7 cubic meters of water had been pumped. Pressuring accounted for 66.1 percent of the increase in extraction in 1956.

The cost of a cubic meter of sea water used in water pressuring is no more than 10 percent of the production costs of a ton of petroleum.

From 1951 to 1957, pressuring was started in seven exploited sites of the Kirmak and Sub-Kirmak layers of Gyurgyany-More and Banka Darvina deposits and the northern sea fold of Ostrov Artema, that is, in all of the exploited sea sites that can be pressured.

Production costs in the Azerbaydzhan offshore fields are approximately 40 percent lower than on land. At some deposits, the production costs are approximately 60 percent lower than throughout the republic.

One of the main problems in developing the offshore fields is to prevent corrosion of the metal structures. The present costs of preventing corrosion comprise approximately 4 percent of the year's petroleum extraction costs and it is likely that they will become greater.

EDITORIAL CRITICIZES CONDITIONS -- Baku, Bakinskiy Rabochiy, 7 Jan 58

In 1958, Azerbaydzhan is scheduled to extract 16.4 million tons of petroleum and 4.5 billion cubic meters of gas.

This goal appears to be enormous but there are still some areas in the Apsheron Peninsula that have not been studied much although they seem to be promising. Oil and gas prospectors should be able to open new horizons at such sites as Kyanizadag, Myagchik, Dashgil, and Kalmas. Geologists were able to open new petroleum horizons even in those areas which had been held as not too promising.

Drillers should drill 905,000 meters and turn over 385 wells to the developmental workers during the year but any increase in volume and drilling depths will require new machinery, improvements in drilling operations, and faster drilling speeds.

Both exploration and developmental drilling depend on the research and development agencies and the machine building plants. However, the State Institute for Planning in the Offshore Areas has been very slow to solve the problem of setting up deep water foundations and this has hampered exploration in the offshore areas. No decision has yet been made regarding the mechanization or automation of the most laborious operations during drilling of shallow, medium, or extra-deep wells. Nor have floats been developed for drilling off shore.

Since the Machine Building Plant imeni Saradarov is not supplying enough metal derricks 53 meters high, drilling to depths of 4,000 to 5,000 meters has been delayed. The bits which are being supplied by the Plant imeni Kirov are not designed for the turbodrill. Oil explorers are complaining against the Plant imeni Leytnant Shmidt because of its failure to provide them with modern machinery for shallow drilling.

Internal reserves must be mobilized if extraction is to increase in 1958. Azerbaydzhan has the potential to increase extraction at the Baku fields. The decline in output from the old areas must be stopped by using more intensified extraction methods and increasing their effectiveness. The results that have been obtained at the fields of the Leninneft' Oil Field Administration and at some of the fields in the older areas indicate what can be accomplished when the oil workers stop neglecting the reserves that can lead to increased output.

While some of the crews and oil fields have taken their tasks seriously to meet the 1958 production goals, production has been declining in such field administrations as Azizbekovneft', Buzovnyneft', Stalinneft', and Artemneft'. Some of the administration supervisors seem to be satisfied with the average indexes for fulfilling the quotas and are not too concerned about the fact that some of the fields and crews fail to meet their daily assignments. -- Editorial

DRILLING FALLS BEHIND -- Baku, Bakinskiy Rabochiy, 15 Jan 58.

In 1958, the Ministry of Petroleum Industry Azerbaydzhan SSR plans to drill 905,000 meters of wells, 555,000 meters of which will be developmental wells.

The goal for January is 23,000 meters of exploratory wells and 38,000 meters of developmental wells. However, in the first 10 days of the month, only 5,575 meters of exploratory wells and 9,311 meters of developmental wells have been drilled. The ministry's Electric Drilling Office, which is supposed to drill 110 meters of exploratory wells during the month, has drilled only 24 meters in the 10-day period.

ENORMOUS NUMBER OF WELLS SHUT DOWN -- Baku, Bakinskiy Rabochiy, 14 Jan 58

There are thousands of wells shut down at the old oil fields in Azerbaydzhan. The plans for 1958 are to restore 730 of them to achieve the goal of 16.4 million tons of crude oil which the industry is expected to extract during the year.

ELECTRIC DRILLING USED IN NEW FIELD ADMINISTRATION -- Baku, Bakinskiy Rabochiy, 17 Jan 58

The first sloped well is being drilled in the Shirvanneft' Oil Field Administration. Drilling by electricity, the drillers have already passed the 1,100-meter mark. The well is being drilled with the aid of an impulse inclinometer which governs the angle of slope and the direction of the stope. More and more wells are being drilled with the electric drill in Azerbaydzhan.

NEW OLD FIELD OPENED -- Stalinabad, Kommunist Tadzhikistana, 29 Dec 57

A new oil field has been set up at Kyurovdag in the Ali-Bayramly Rayon of Azerbaydzhan SSR. The field is located on the left side of the Kura River.

REPORTS ON OIL FIELDS -- Baku, Bakinskiy Rabochiy, 14 Nov 57

Oil Field No 6 of the Leninneft' Oil Field Administration is the oldest oil field in the USSR.

Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 11 Oct 57

Oil Field No 12 of the Leninneft' Oil Field Administration is located in the Ramangi Rayon of Baku.

Moscow, Trud, 24 Nov 57

Oil Field No 14 of the Ordzhonikidzeneft' Oil Field Administration is an offshore field built up on piles in the vicinity of Ostrov Peschanny.

III. FERROUS METALLURGY

Production

KAZAKHSTAN SOVNARKHOZ TO RAISE IRON ORE OUTPUT -- Moscow, Izvestiya, 14 Jan 58

Not long ago the Kustanayskiy Sovnarkhoz completed the drawing up of the 7-year plan for the development of its economic region. According to this plan the Sokolovsk-Sarbay Combine will produce millions of tons of ore annually in 1965.

Just before the 40th anniversary of the October Revolution, the first 60,000 tons of ore was shipped to the Urals. Workers of the combine have set themselves the task of delivering the first million tons of iron ore in 1958.

COMBINE MINE SHIPS IRON ORE TO URALS -- Moscow, Vechernyaya Moskva, 29 Jan 58

Constructors of the Sokolovsk-Sarbay Mining and Concentrating Combine have marked the third year of the Sixth Five-Year Plan by great work success. They have put in operation the first unit of the Sokolovsk Mine. On 28 January workers of the mine completed the January plan 3 days ahead of schedule. They have shipped 50,000 tons of iron ore to metallurgists of the Urals. Constructors and miners of the combine have pledged to put the second unit of the mine in operation during 1958 and to extract at least 1,050,000 tons of iron ore.

Construction

KRIVROY ROG PRODUCTION PROGRAM PRESUPPOSES INTENSIVE CONSTRUCTION -- Kiev, Pravda Ukrainy, 30 Jan 58

In 1965, the Krivoy Rog Basin is to deliver 70 million tons of ore to the USSR, whereas the 1958 plan calls for 44 million tons. At present, more than 80 percent of the areas containing rich ores in Krivoy Rog are being exploited. Growing requirements can be satisfactorily met only by construction of concentrating combines on the basis of low-grade iron quartzite and by a radical reconstruction of the largest mines of the basin. During this period, it will be necessary to construct six mining and concentrating combines. By the end of the Sixth Five-Year Plan, it will be necessary to open the Novo-Krivorozhskiy Plant, the first unit of the Central and Southern Mining and Concentrating Combine No 2, with a total annual capacity of 12 million tons of concentrate.

To accomplish this enormous volume of construction and assembly work, construction organizations must have at their disposal 1.5 billion rubles during 1958. The Krivoy Rog Basin Construction Combine now has at its disposal a total of only 700 million rubles. Up to now questions of increasing capacities have been decided most unsatisfactorily.

USSR TO BUILD SEVEN NEW BLAST FURNACES -- Moscow, Trud, 11 Jan 58

Seven blast furnaces are to be built in the USSR in 1958, of which constructors of the Donbass will erect three. Furnace No 3 will be built in the Plant imeni Il'ich, furnace No 5 in the Azovstal' Metallurgical Plant, furnace No 4-bis in the Yenakiyevo Metallurgical Plant.

Construction of furnace No 5 was started at the end of 1957 and operations there are now in full swing. In the construction of furnace No 4-bis excavations are in progress. For furnace No 5 alone, more than 16,000 tons of firebrick must be laid and about 50,000 tons will be required for the three furnaces.

TEMIR-TAU PLANT UNDER CONSTRUCTION -- Moscow, Izvestiya, 14 Jan 58

A new giant of the metallurgical industry is being constructed in the city of Temir-Tau. The construction area is spread over many square kilometers. At present, the attention of the builders is turned to the main installation -- the first Kazakhstan blast furnace. Not long ago the foundations for this blast furnace were laid.

BLAST FURNACE CONSTRUCTION PROGRESSES -- Moscow, Sovetskaya Rossiya, 21 Jan 58

Regarding the construction of a fifth blast furnace, Chelyabinsk reports that 500 cubic meters of concrete has been laid in the foundations of the furnace, as the result of the constructors' first 10 hours of work. After another 48 hours, the appearance of the construction area had become unrecognizable. On the place where even yesterday blasting workers were drilling holes for ammonal, there was a long deep trench and a line of future tunnels for the new blast furnace.

ORSK-KHALILOVO COMBINE TO ACQUIRE SECOND BLAST FURNACE -- Moscow, Trud, 4 Jan 58

Constructors of the Orsk Metallurgical Construction Trust have begun building a second blast furnace in the Orsk-Khalilovo Metallurgical Combine. Recently, they began to dig the foundation pit. During the first

workdays, the operator of the excavator removed 350 cubic meters of earth although his norm was 280 cubic meters. Another operator and his assistant removed 420 cubic meters. Other operators also considerably exceeded their norms.

The excavator operators gave their word that they would complete digging the pit under the blast furnace by 4 January -- 11 days ahead of schedule. On 3 January, they completed the pit and started planning the construction area of the blast furnace.

UKRAINIAN PLANT HAS EXTRALARGE BLAST FURNACE -- Baku, Bakinskiy Rabochiy, 4 Jan 58

The largest blast furnace in the Ukraine is being constructed in the Krivorozhstal' Plant. This furnace will smelt in 24 hours as much pig iron as is now smelted by two regular blast furnaces. There are no blast furnaces with such a large capacity in the capitalist countries of Europe. This blast furnace is entirely welded.

NIZHNE-TAGIL COMBINE TO ACQUIRE LARGE NEW ROLLING MILL -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 22 Jan 58

It is planned to put seven rolling mills in operation in the USSR in 1958. One of these, the large-size "650" mill, is being constructed in the Nizhne-Tagil Metallurgical Combine. To build it the constructors must remove 268,000 cubic meters of earth, lay 84,000 cubic meters of concrete as well as hundreds of kilometers of pipe, and assemble more than 20,000 tons of metal structures and technological equipment. The new rolling mill will supply the Ural Car Plant with many rolled iron sections which are now being transported from other economic regions, and it is also intended to produce pipe billets and to roll girders and beams and narrow-gauge rails. Enterprises of the Sverdlovskiy Sovnarkhoz greatly need these items.

DNEPROPETROVSK PLANT TO ACQUIRE HIGHLY EFFICIENT ROLLING MILL -- Leningradskaya Pravda, 23 Jan 58

The Dnepropetrovsk affiliate of Giprometz (State Institute for the Planning of Metallurgical Plants) has started drawing up working plans for a new shop for the production of economical rolled iron profiles. It will be built in 1958 in the Dnepropetrovsk Metallurgical Plant.

In the shop a large rolling mill will be installed in which metal will be rolled for the motor tractor industry. Parts rolled in this mill will be turned out as semifinished products. This will reduce the consumption of metal considerably and accelerate mechanical processing of parts in the mill.

It is planned to install a number of other highly productive rolling aggregates in the shop.

TASHKENT IMPROVES METALLURGICAL FACILITIES -- Tashkent, Pravda Vostoka, 14 Jan 58

The Tashkentskiy Sovnarkhoz plans to expand and strengthen its metallurgical base in the next 7 years. The output of steel and rolled stock will more than double by 1965. A new rolling mill will be put in operation for the production of fine-grade wire, and the existing "300" rolling mill will be reconstructed. The enterprise will receive new cupola and electric smelting furnaces. An installation for the continuous casting of steel will be put in operation.

An important measure for lowering the production costs of metal will be the conversion of the plant from expensive Ural and Siberian raw materials, located at a distance, to local raw materials to be brought in from the adjacent republics.

NEW CONSTRUCTION EXPANDS NOVO-LIPETSK PLANT CAPACITY -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 8 Jan 58

A shop for the hot rolling of precision steel sheet has been put in operation in the Novo-Lipetsk Metallurgical Plant, marking the beginning in the creation of a complex of large rolling mills for the production of electrotechnical steels. There is also under construction an electric steel smelting shop with two electric furnaces, each with a capacity of 80 tons and installed for the continuous casting of metal. A complex of auxiliary shops is being constructed.

The plan provides for construction of another blast furnace, a cold rolling shop, an open-hearth and a coke-chemical shop, and others. When the new capacities are being exploited, the volume of production will be increased to eight times its former level.

The Svobodnyy Sokol Metallurgical Plant is being reconstructed. During 1958, a shop for the centrifugal fabrication of pipes and a radiator shop will be put in operation.

Technology

HEAT TREATMENT OF STEEL FOR RAILROAD CAR WHEELS IMPROVES QUALITY -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 15 Jan 58

Rolled stock occupies one of the most important places in products issued by the Dnepropetrovskiy Economic Region. In producing it, enterprises are making more and more use of the heat treatment which raises the durability of rolled stock and increases its length of service. For example, heat treatment of rails doubles the period during which they may be used and double heat treatment of railroad car wheels raises their durability to four times its previous level.

Scientists are devoting much attention to this outstanding production method which holds such good prospects for the rolled stock industry. Associates of the Institute of Ferrous Metallurgy of the Academy of Sciences Ukrainian SSR in cooperation with the specialists of the Pipe-Rolling Plant imeni K. Libknekht have proposed an improved technological process of heat treatment for railroad car seamless rolled wheels. At present, preparation of the first aggregate for heat treatment of wheels by the new technology is being completed at the Dnepropetrovskiy Plant of Metallurgical Equipment. The aggregate is completely mechanized and automatized and will have a productivity of 40,000 wheels per year.

The chair of heat treatment of the Dnepropetrovsk Metallurgical Institute, together with the Nikopol' Yuzhnyy Pipe Plant, has devised a technological process for drawing pipe heated by high-frequency current. It has a number of advantages over the process of cold drawing.

Work on the heat treatment of structural rolled stock is being performed in the Institute of Ferrous Metallurgy of the Academy of Sciences Ukrainian SSR. It has been shown that heat treatment of steel with a 0.15-0.45-percent content of carbon sharply increases its durability, plasticity, and viscosity. Because of this it is possible to reduce considerably the weight of parts of machines and structures prepared from structural rolled stock.

NEW TECHNOLOGY SPEEDS UP PIPE MAKING -- Leningradskaya Pravda, 23 Jan 58

Workers of the Scientific Research Institute of High Frequency Current have completed valuable work on the use of high frequency current in the ferrous metallurgical industry. Associates of the laboratory on continuous annealing designed a special mill for plants preparing pipes. Contact electric heating in the production of seamed pipes has given way to the use of induction heating. This doubles the speed of welding, making it possible to weld up to 60 meters per minute. The new technology makes it possible also to produce seamed pipe more than one meter in diameter with walls up to 12 millimeters thick.

ROLLING MILL EQUIPPED WITH UNUSUAL FINISHING STAND -- Promyshlenno-Ekonomicheskaya Gazeta, 26 Feb 58

A rolling mill for hot rolling of precision steel sheet has been installed in the Novo-Lipetsk Metallurgical Plant. This rolling mill is equipped with a finishing stand which is a novelty both for domestic and foreign techniques. The rolling mill industry of the world has a total of only 14 such stands.

In ordinary rolling mills which operate continuously or semicontinuously the strip is passed through from six to ten stands. The new mill has just one finishing stand. The fixed thickness of the rolled product is achieved by passing the strip three to five times through the rollers.

The steel sheet is controlled, cut in measured pieces, and stacked in piles without benefit of human labor. Almost no persons are to be seen in the vast expanse of the shop. Machines perform all operations here.

TREATED CAST IRON TO REPLACE BRONZE -- Moscow, Moskovskaya Pravda, 3 Jan 58

Critical parts for many machines are made of bronze but this metal can be replaced by a cheaper, more readily available metal. It has been shown that if gray cast iron is subjected to a special thermochemical treatment, it acquires the properties of bronze. Such a process is called "sulfidizing." Machine parts of cast iron are put in a metal box in which are placed ferrous sulfide, aluminum oxide, and ammonium chloride. Then the box is placed in an electric muffle furnace where it is heated for several hours at a temperature of approximately 950 degrees. After such thermochemical treatment, the cast iron becomes sulfidized and its durability is increased to 150 times that of ordinary cast iron.

NEW TECHNOLOGICAL PROCESS FOR STEEL -- Tallin, Sovetskaya Estoniya, 7 Jan 58

A new converter shop has been put in operation in the Krivorozhstal' Plant. Here they have begun producing steel by a new technological process -- the method of blowing technically pure oxygen through the pig iron.

BLAST FURNACE ADOPTS EFFICIENCY SUGGESTION OF SCIENTIST -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 17 Jan 58

A new, improved method of distributing the charge, devised by N. S. Shchirenko, Doctor of Technical Sciences and professor at the Dnepropetrovsk Metallurgical Institute, has been utilized in blast furnace No 8 of the Metallurgical Plant imeni Dzerzhinsk for the first time in metallurgical practice. This arrangement assures even distribution of the charge.

Scrap Collection

LITHUANIAN SCRAP METAL PROGRAM EXPERIENCES DIFFICULTIES -- Vil'nyus
Sovetskaya Litva, 17 Jan 58

The Lithuanian SSR has considerable supplies of scrap metal. During 1957, storing organizations and enterprises of the republic fulfilled the year plan for preparation and shipping of scrap metal for the first time in many years.

However, many flaws are still concealed behind general positive indexes. For example, 209 deliverers of scrap metal did not fulfill the plan in Lithuania. The Klaypeda Ship Repair Plant, the Baltiyskiy Shipbuilding Plant, and the Vil'nyus Plant for Electric Welded Equipment made a poor showing in delivering scrap. As a rule, delivery of metal goes slowly at the beginning of the year. The disruption in supplying of scrap in the winter is attributed to the poor road situation. Actually this is not so; a snow cover will not prevent supplying of scrap if it has been properly stored.

Deposits, Mines, Plants

OPEN-PIT MINING STARTED IN DEPOSITS OF KURSK MAGNETIC ANOMALY -- Leningradskaya Pravda, 4 Jan 58

In the central European part of the USSR is located an inexhaustible source of iron ores -- the Kursk Magnetic Anomaly, which contains several billion tons of ore. The Yakolevskoye deposit alone is twice as rich as the Krivoy Rog iron ore basin.

Large ore-mining enterprises will be developed in the Kursk Anomaly in the near future and will deliver tens of millions of tons of high-grade ores.

At present, geologist-prospectors, hydrogeologists, and construction-assembly personnel are at work here. Open-pit operations have been started in the Lebedinskoy and Mikhaylovskoye deposits. Scientists are seeking ways and methods to improve exploitation of the rich iron ore deposits of the Kursk Magnetic Anomaly.

CHARACTERISTICS OF KRIVOY ROG IRON ORE DEPOSITS -- Moscow, Gornyy Zhurnal, No 2, Feb 58, p 2

The main part of the reserves in the Krivoy Rog Basin (97.11 percent) are concentrated in beds 5 meters or more thick. Beds 2-5 meters thick contain 2.49 percent of the ore and only 0.4 percent of total reserves are contained in beds less than 2 meters thick. Thin ore beds are important only under the conditions found in the Mine imeni Frunze, the Mine imeni Il'ich, and the Ingulets Mine whose share of the reserves amounts to 2.2 percent, 5.5 percent, and 1.8 percent, respectively.

Of the 220 bodies of ore in the basin, 54.5 percent lie in stable side rock and 45.5 percent in unstable side rock. A large proportion of the ore beds lie at an angle of 60 degrees or less and only 32 percent have a steeper angle of dip.

LARGE NEW IRON ORE MINE IN OPERATION -- Moscow, Trud, 4 Jan 58

A large new mine named Saksagan', with a productivity of 3.5 million tons of iron ore per year, has been put in operation in the mine field imeni Dzerzhinskiy in Dnepropetrovskaya Oblast.

FACTORS CONTRIBUTING TO SUCCESS OF MINE IMENI KARL LIBKNEKHT -- Kiev, Pravda Ukrainy, 4 Jan 58

To accelerate success in the economic competition with capitalism, miners of the Krivoy Rog Basin are continually seeking and putting into operation their own production reserves. This year, miners of the outstanding Mine imeni Karl Libknekht delivered 180,000 tons of ore more than in 1956, more than 84,000 tons above the plan. Labor productivity rose 14.7 percent.

This success was achieved primarily by extensive adoption of progressive technology and outstanding work methods. The new system of mining ore by sublevel collapsing increased productivity by 25-30 percent. The new, perfected L-2-16 and LS-28 winches as well as 10-ton, heavy-load cars were put in operation.

High-speed preparation of the mine faces has contributed to the regular operation of the enterprise. In the mine there are three mine sinking brigades who have achieved a speed of 120-150 linear meters per month in advancing horizontal workings, greatly exceeding work indexes of other groups of workers.

The operation of the drainage installation at the 500-meter level of Novaya Mine has been automatized. Here two elevator hoists have been put in operation to convey personnel and materials. Metal props are widely used. These and many other innovations have enabled the miners to reduce the production costs of ore 2.9 percent and to save 2 million rubles.

SOKOLOVSK MINERS COPE WITH DIFFICULTIES -- Leningradskaya Pravda, 16 Jan 58

On 14 January, miners of the Sokolovsk-Sarbay Ore Concentrating Combine accepted from the constructors all installations making up the first unit of the Sokolovsk Mine. Workers of the enterprise have resolved to extract a million tons of iron ore during 1958.

The effort to fulfill this obligation is meeting with serious difficulties. The pit of the mine was flooded with quantities of ground water. At present, they have succeeded in lowering the level of the water by meters. This has considerably improved the working conditions for the excavators and for motor transport. The first bench of the ore face has emerged in the pit. Since the beginning of 1958, Sokolovsk miners have shipped ten carloads of ore to metallurgical enterprises of the Urals.

BOL'SHEVIK PLANT ACHIEVES PRODUCTION SUCCESS -- Leningradskaya Pravda, 12 Jan 58

Metallurgists of the Bol'shevik Plant completed the 1957 program 13 days ahead of schedule, saving more than 2,300 tons of mazut and more than 1.5 million rubles. They have assumed increased obligations for 1958 -- to deliver above the plan thousands of tons of steel, rolled stock, and peening.

METALLURGICAL PLANT EXPANDS OPERATIONAL FACILITIES -- Tbilisi, Zarya Vostoka, 12 Jan 58

The Transcaucasus Metallurgical Plant imeni I. V. Stalin in Rustavi is the pride of the Georgian SSR. In 1954, the Rustavi workers obtained the first pig iron from blast furnace No 1 and the first coke battery was put in operation. In 1955, coke battery No 2, blast furnace No 2, and the first belt of the agglomerating mill were put in operation. In 1956, a large sheet rolling mill started operations. In 1957, two open-hearth furnaces were put in operation.

LENINGRAD ENTERPRISE INCREASES WEIGHT OF STEEL BARS -- Moscow, Vechernyaya Moskva, 3 Feb 58

Steel workers of the Izhora Metallurgical Plant have for the first time poured bars of high-quality steel weighing 95 tons. Metallurgical shops of Leningrad enterprises had previously not been able to pour bars exceeding 85 tons in weight.

RECONSTRUCTION PERMITS INCREASE IN CAPACITY OF ZAPOROZH'YE COMBINE -- Kiev, Pravda Ukrainy, 28 Jan 58

After a recent reconstruction of the shops in the Zaporozh'ye Metallurgical Combine Zaporozhstal', the slab mill and sheet mill were put in operation. Because of the reconstruction, the capacity of the rolling mills was increased 40 percent. The slab mill now rolls ingots weighing 18-20 tons, whereas it could take ingots weighing only 9-10 tons formerly. The capacity of the sheet mill has also doubled.

LATVIAN PLANT RAISES TOP-GRADE PRODUCTION -- Riga, Sovetskaya Latvija, 9 Jan 58

Sheet mill and rolling mill operators of the Latvian "Sarkanays Metalurgs" Plant completed the 1957 plan ahead of schedule. The cooperative efforts of the workers, engineers, and technicians resulted in a saving in metal per ton of yearly production amounting to 36.4 kilograms for precision sheet metal and 91.5 kilograms for roofing. The output of top-grade production was also increased. The output of top-grade precision sheet metal amounted to 98.5 percent, and of top-grade roofing, 81.8 percent.

CHELYABINSK PLANT UTILIZES POWERFUL CAR DUMPER -- Leningradskaya Pravda, 9 Jan 58

Various equipment is being used in the Chelyabinsk Metallurgical Plant which makes it possible to mechanize many processes in the production of coke, pig iron, and rolled stock. A powerful car dumper is in use in the coke shop which can dump at one time 25-30 sixty-ton cars loaded with coal.

KRIVOY ROG PLANT STARTS STEEL OUTPUT -- Moscow, Komsomol'skaya Pravda, 4 Jan 58

Although the metallurgical plant in Krivoy Rog is called Krivorozhstal', it has not been producing steel, but only pig iron and rolled stock. Recently, it has started to deliver its own steel. A large Bessemer shop has been built and the steel smelters have removed the first tons of metal from the converters. The plant is now issuing production for the entire metallurgical cycle.

Miscellaneous

LOW-GRADE RAW MATERIALS HAMPER UKRAINIAN STEEL OUTPUT PROGRAM -- Kiev, Pravda Ukrainy, 7 Jan 58

The Gosplan Ukrainian SSR provides for supplying open-hearth furnaces with a heavy metal charge, but these furnaces are actually receiving light-weight metal filings. This creates great tension in the shop, charging takes a longer time, the smelting period exceeds the norm, and proper conditions are not created for developing competition among the steel workers in the advancement of high-speed steel smelting. Many efforts were made to put two large-load open-hearth furnaces in operation ahead of schedule in the Zaporozhstal' Plant. This goal was achieved but the performance goal has not yet been achieved. This is because of the light-weight fragments included in the components of some charges.

The Gosplan Ukrainian SSR must unconditionally fulfill its plans so that repeated promises of the chief of the mining and ore industry may be realized.

Connections with scientific establishments are satisfactory. In cooperation with the Institute of Ferrous Metallurgy of the Academy of Sciences Ukrainian SSR and the Chair of Metallurgy of the Dnepropetrovsk Metallurgical Institute, successful operations for intensifying metallurgical processes are being conducted. The use of natural gas opens up great prospects for metallurgists. The Institute of Electric Welding is also introducing a number of innovations in the Ukrainian metallurgical industry.

NEW FLUXED AGGLOMERATE STEPS UP PRODUCTIVITY OF BLAST FURNACES -- Minsk, Sovetskaya Belorussiya, 8 Jan 58

In 1958, the Kamysh-Burunskiy metallurgists have begun the output of a fluxed agglomerate, the use of which will increase the productivity of the blast furnaces 2 percent and decrease the consumption of coke 3.5-4.0 percent.

Miners of the Balaklavskoye Mine Administration have achieved high production indexes. Daily they are extracting more than 100 tons of flux above the amount provided for in the new increased plan. The first trainloads of high-grade metallurgical limestone have been shipped to Krivoro-zhstal', Zaporozhstal', and the Yuzhnyy Mining and Concentrating Combine.

FERROUS HORNSTONE TO EXPAND IRON ORE OUTPUT -- Moscow, Gornyy Zhurnal, No 2, Feb 58, p 7

The chief increase in mining iron ore in the Krivoy Rog Basin should be achieved by open-pit operations based on exploiting ferrous hornstone. Here the YUGOK (Yuzhnyy Mining and Concentrating Combine) was put in operation at the end of 1955 and, from the end of 1956, it was operating at full capacity. The construction of the New Krivoy Rog and the Central Mining and Concentrating Combines has begun.

With the start of operations in the second unit of the concentrating complex YUGOK, difficulties were incurred in assuring the concentrating mill of raw materials. One reason for this was the inadequate length of the front in mining operations which did not allow the excavators to work at full capacity.

URAL PLANT TO FURNISH EQUIPMENT FOR HIGHLY PRODUCTIVE BLAST FURNACES -- Moscow, Trud, 21 Jan 58

Blast furnaces constructed during the past 25 years in the USSR have been equipped with devices from the Ural Heavy Machine Building Plant. During 1958, the Ural plant has the task of supplying equipment for seven furnaces, three of which will be 50 percent more productive than the blast furnaces of Magnitogorsk.

MANY PLANTS SUPPLY EQUIPMENT FOR KARAGANDA COMBINE -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 31 Jan 58

More than 400 USSR plants are to prepare equipment for the Karaganda Metallurgical Combine. Machines and instruments with a total weight of 300,000 tons and a price cost of 1.2 billion rubles are necessary for shops of the first unit of the aggregate.

PLASTIC LINING FOR STEEL PIPE -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 5 Jan 58

The First Ural Old Pipe Plant, in cooperation with the model construction workshops of the Main Administration of Plastics, Varnish, and Paint Industry, has mastered the production of steel pipe lined with vinyl plastic and organic glass.

The process of preparing the lined pipes consists of two operations: the welding of the sheet vinyl plastic or organic glass in the pipe, and the lining.

To obtain lined pipes, plastic pipes are inserted inside steel pipes and together with them are heated in a furnace to the required temperature. In this process the plastic pipe expands and comes into close contact with the inner surface of the steel pipes.

The Verkh-Isetskiy Metallurgical Plant is now completing assembly of connecting pipelines of the pickling installation, which consist entirely of pipes lined with vinyl plastic. Experiments have indicated that lined pipes are capable of withstanding pressure on an equal basis with steel pipes and can operate in a hydrochloric acid medium at a temperature up to 100 degrees centigrade.

The first models of curved lined pipes have been received.

RUSTAVI STEEL PIPES EXTENSIVELY EXPORTED -- Tbilisi, Zarya Vostoka, 17 Jan 58

Metal from the Transcaucasus Metallurgical Plant imeni I. V. Stalin has widespread use throughout the USSR. Steel pipes with the Rustavi trademark are also noted in foreign countries for their durability. Some of the countries which receive them are China, Czechoslovakia, Rumania, Iran, and Argentina.

IV. NONFERROUS METALLURGY

Construction

NICKEL-MANGANESE BASIN TO BE BETTER DEVELOPED -- Moscow, Izvestiya, 24 Jan 58

The chairman of the sovmarkhoz, reporting from the city of Dnepropetrovsk, states that the sovmarkhoz is greatly stressing the development of the nickel-manganese basin. It is planned to extend open-pit mining there to reach a total of 30 percent in 1958 and 70 percent in 1965. Two large concentrating plants will be built to produce concentrates.

Technology

NICKEL PRODUCED FROM SILICATE-NICKEL ORE -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 10 Jan 58

Explored reserves of silicate-nickel ore have increased considerably in part years and this is permitting organization of the production of nickel on a large scale. However, it is impossible to call effective the treatment of this ore by the method of reduction-sulfurizing smelting in water-jacketed furnaces. By this method a little nickel is extracted from the ore but losses of iron in the slag are very great.

Ferronickel can be very effectively obtained from silicate-nickel ore both in blast furnaces and in electric furnaces, as the practice of the Orsk-Khalilovo Metallurgical Combine testifies.

Judging by technical-economic calculations, blast-furnace smelting possesses a number of advantages over smelting in water-jacketed furnaces. More than 15 percent of the nickel is extracted and conditions are created for an almost complete extraction of the iron. The specific consumption of coke is reduced 5-8 percent. Labor productivity is more than doubled and its conditions are considerably alleviated. A ton of nickel in ferro-nickel is 40 percent cheaper than a ton of nickel as produced in a water-jacketed furnace.

However, blast-furnace smelting cannot be recommended for all oxidized ores but only for iron-nickel ore with a low cobalt content because in the existing technology for treating oxidized nickel ores only one third of the cobalt in them is extracted in the form of metallic cobalt. In blast-furnace smelting the cobalt cannot be obtained as an independent component.

Before introduction of blast-furnace smelting of silicate nickel ores, a series of experimental operations must be performed. It is necessary to explain how to prepare the silicate-nickel ores more efficiently for the blast-furnace smelting and to check under industrial conditions processes of smelting these ores to concentrate the ferronickel, and find the best means for cleaning it from admixtures which can impair open-hearth smelting.

The Gipronikel' (State Institute for Planning of Nickel Enterprises) Institute is experimenting in the given field; however, the volume of necessary operations is so great that it is doubtful whether it can be completed by the personnel of one institute. To solve such a task it is necessary to draw on a number of institutes.

An over-all plan for research and experimental-industrial operations, fortified by materials and cash funds, must be worked out. Evidently it would be expedient to commit the management of the operations according to the plan to the State Scientific and Technical Committee of the Council of Ministers USSR.

AUTOMATIC DEVICES USED IN PRODUCTION OF TITANIUM -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 26 Jan 58

Titanium, considerably more durable than iron and with only a little more than half its specific gravity, is used extensively in many branches of industry. Extraction of titanium in the pure form from the ore is a complicated, many-stage process.

Now shops of the Ukrenergoremont [Ukrainian Repair Enterprise of the All-Union Electrical Engineering Trust?] have begun the preparation of automatic installations to control the operation of vacuum electric furnaces designed here to extract titanium from the concentrated and chemically processed ore. The automatic devices are intended to charge and switch on the furnaces, to maintain the complicated temperature schedule, and to stop the process at the proper moment. This apparatus is based on the latest achievements of electronic techniques. Included in the scheme are many registering and recording instruments which have been developed by a number of scientific research planning institutes. The furnaces will be controlled from one central point.

This new automatic method for the production of titanium was worked out by the personnel of the Moscow and Khar'kov designing offices of the Elektropetch' Trust [State All-Union Trust for the Production of Electro-thermic Equipment].

AUTOMATIC INSTRUMENT MEASURES THICKNESS OF ROLLED METAL -- Promyshlenno-Ekonomicheskaya Gazeta, 15 Jan 58

Until recently, the thickness of rolled metal was controlled by a manually operated micrometer in the Balkhash Copper-Smelting Plant. The master of the shop for control and gauging instruments proposed an automatic instrument for measuring the thickness of the metal being rolled while the rolling mill was in operation. The indicating device of the instrument assures accuracy of measurement up to 0.01 millimeter.

METHODS USED TO PRODUCE COPPER AND ALUMINUM -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 31 Jan 58

The technology and organization of production adopted in some branches of the nonferrous metallurgical industry do not assure the complete utilization of the raw material. A large amount of valuable components of the extracted ores is lost with gases, powders, semifinished products, slags, clinkers, and other tailings.

A progressive method of roasting concentrates in a fluidized bed is being introduced very slowly in the copper industry. This method is particularly important for the copper-zinc ores of the Urals because it permits the achievement of a concentration of 10-15 percent of SO_2 in the outgoing gases, improves the quality of the matte, and separates the zinc from it. By the increase of sulfurous anhydride in the waste gases, it is possible to obtain profits in the amount of 70 million rubles in the Central Urals Copper-Smelting Combine from the output of sulfuric acid alone.

The very large copper-smelting plant in Balkhash which processes sulfide ores and concentrates has not yet organized the production of sulfuric acid, although this is a very important product for mastering the processing of oxidized and mixed copper ores.

The proportion of copper in the total price costs of ores from the Urals copper pyrite deposits is 19-36 percent, and in the commercial product put out by enterprises which process this raw material, about 65 percent. In the Karabashskiy Plant this figure reaches 80 percent, which is proof of the very inadequate utilization of many valuable components in the Ural copper ores.

Large quantities of gases containing fluorine are released in the aluminum industry during the process of the electrolysis of cryolite-alumina fusions. At present, these are discharged into the atmosphere. Separation of fluorine from the gases would be an additional source of fluorine salts (ftoristaya sol') which are necessary to obtain aluminum.

Deposits, Mines, Plants

RICH MINERAL DEPOSITS FOUND IN EAST SIBERIA AND FAR EAST -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 26 Jan 58

Before the October Revolution, the Yakutskaya ASSR and Magadanskaya Oblast were merely white spots on the map of Siberia. Now these areas occupy first place in the USSR in the extraction of tin and gold. Very large basic and placer deposits of diamonds have been discovered in the Yakutskaya ASSR which are as large as the celebrated diamond fields of Africa. In the southern part of the Yakutskaya ASSR is a large coal basin, the resources of which are estimated at 40 billion tons. A large part of these deposits can be exploited by the open-pit method. Close at hand are deposits of rich iron ore. Such uncommon concentration of coking coal and iron ore creates favorable conditions for the development here of the ferrous metallurgical industry as well as of other branches of industry.

In the Yakutskaya ASSR large deposits of phlogophite mica have been explored, reliable geological prerequisites have developed for the opening up of deposits of rare metals, and deposits of fuel gas have been discovered. The Yakutskaya ASSR is also rich in tungsten, and recently lead and zinc have been found there.

Khabarovskiy and Primorskiy krays have in recent years been found to be areas with an extensive occurrence of tin. Here too have been discovered deposits of fluorspar, rare metals, and scattered elements; lead, zinc, and boron are also known to occur here. In addition, the Far East contains many coal beds, iron ore, and various nonmetallic minerals. Before the Revolution, the Tetyukhinskoye lead deposit was the only one known and this was exploited by foreign companies. Now there are many ore-mining enterprises. There is a basis for supposing that the Far East will become the large industrial area of Siberia.

Transbaykal has exceptionally rich mineral deposits. Unique deposits of gold and fluorspar are known to be here, as well as large beds of lead, zinc, tungsten, and molybdenum. Very large supplies of different types of aluminum raw materials and rare metals have been explored here. One of

the largest copper areas in the USSR has been uncovered in the Trans-baykal. Deposits of iron ore, coal, and other useful minerals have been explored. In Angaro-Ilimskiy Rayon, Irkutskaya Oblast, large supplies of high-quality iron ore have been found, on the basis of which large ore-mining enterprises have already been created. Here for a long time deposits of muskovite mica have been world-famed.

In the western part of Irkutskaya Oblast are concentrated almost limitless supplies of sodium chloride. The prerequisites exist here for discovering potassium salts and petroleum.

Krasnoyarskiy Kray is rich in mineral raw materials. Noril'skiy Rayon has the largest deposit of copper-nickel ores in the country and these ores also contain platinum and a number of other useful minerals. In various rayons of the kray, geologists have explored deposits of iron ore, coal, bauxite, and nepheline. Yeniseysk is also rich in gold, and recently deposits of titanium were discovered here.

GEOLOGICAL EXPLORATION EXPANDS USSR MINERAL RESOURCES -- Yerevan, Kommunist, 7 Jan 58

In 1957, hundreds of geological groups, detachments, and expeditions, equipped with the most modern techniques were at work in the vast expanses of the USSR. They exceeded the plan for the growth of reserves of iron and manganese ore, for titanium, copper, lead, bauxite, nickel, tin, tungsten, molybdenum, antimony, mercury, diamonds, phosphorites, mica, gold, coking coals, and other useful minerals. The Gayskoye copper ore deposit which is located not far from the copper-smelting plants of the Urals was considerably expanded. The discovery of deposits of nepheline syenites in Kemerovskaya Oblast has great industrial significance since these minerals are a raw material for obtaining aluminum. In the Yakutskaya ASSR large basic and scattered deposits of tin have been found, and in Magadan-skaya Oblast, new gold-bearing sands.

Geologists in search of diamonds in East Siberia uncovered new diamond fields in the basins of the Lena and Aldan rivers.

In the southeastern part of the West Siberian lowlands, large deposits of brown hematite have been discovered. Preliminary estimates of the reserves of these deposits have been put at tens of billions of tons. As a result of geophysical and drilling operations in Altay and in the Zapadnyy Sayan Mountain range, the reserves of iron ore in the Inskoye, Beloretzkoye, and Anzanskoye deposits have risen greatly and can serve as a dependable additional raw material base for the West Siberian Metallurgical Combine.

In 1957, the plan was fulfilled for the exploration and increase of reserves of rich iron ore in Belogorodsko-Kurskiy Rayon.

EAST KAZAKHSTAN A VERITABLE ORE-BEARING ALTAY -- Alma-Ata, Kazakhstanskaya Pravda, 19 Jan 58

Kazakhstan takes first place in the USSR for explored reserves of copper, lead, zinc, and other nonferrous metals. This veritable ore-bearing Altay possesses a great amount of the mineral raw materials; the main deposits are rich complexes of sulfide and oxide ores containing various metals. This characteristic peculiarity of East Kazakhstan ores makes them very valuable raw materials for the modern metallurgical industry.

Operating enterprises of the East Kazakhstan Economic Region, are assured of adequate explored supplies of polymetallic ores for 20-25 years to meet their planned capacities. The rate of exploiting these ores is growing rapidly. Contributing factors to this are the expansion of the volume of production in metallurgical enterprises, the creation of a large power base, and the improvement of transport connections. During the next 7 years, the requirement for polymetallic ores will be doubled.

The rate of growth in supplies of industrial ores has been considerable in past years but in some cases they have lagged behind the rate of their extraction. In some deposits being worked, it is still impossible to extract a considerable part of the reserves for a number of reasons. Almost half of the explored reserves in the Leninogorsk ore field belong in this group since they are located under the bed of the Filippovka and Bystrukha rivers, lying at great depths or at a distance from active mines. This limits the rapid growth in capacity of the Leninogorsk Polymetallic Combine. The same thing occurs also in Zyryanovsk where a considerable part of the polymetallic ore is located at a depth of more than 500 meters. Ores of Nikolayevskoye deposit have been worked by the open-pit method through several summers only. Despite the total great reserves of explored ores, geological operations in East Kazakhstan must be greatly intensified. In a short time the mineral raw material base of active enterprises must be expanded considerably and consolidated.

Workers of the USSR are now engaged in working out prospective plans for the development of the national economy in the near future. In the main a plan has been completed for geological operations for 1959-1965 also in the East Kazakhstan Geological Administration.

A complicated task faces geologists, namely, to open up and develop in the near future, in industrial regions, rich new deposits which are located near the surface. There must be no dependence on easy and accidental findings of deposits with outcrops at the surface, but rather buried and so-called blind deposits should be sought. It is possible to solve this problem successfully only by a detailed study of the geological structure of the mineral resources and the regularity of the ore formation, by exploitation, using improved techniques and methods of geological exploration.

1958 PLAN FOR INCREASE IN NONFERROUS METALLURGICAL INDUSTRY -- Alma-Ata, Kazakhstanskaya Pravda, 25 Jan 58

The 1958 plan for the nonferrous metallurgical industry provides for a 3.4-percent increase in over-all production over 1957. The 1958 plan directs its main attention to the Dzhezkazgan copper ores deposit which is one of the largest in the world. In this deposit are concentrated 27 percent of the copper resources of the USSR. In 1965, mining of copper ore in Dzhezkazgan should rise to 2.5 times its present level. There will be built here a very large complex of ore-mining and copper-smelting enterprises.

Great attention will also be paid to development of large enterprises for the lead and zinc industry, in particular the Mirgalimsayskoye deposit in South Kazakhstan where supplies of lead ore amount to 15 percent of all those in the USSR and also the Zyryanovskoye polymetallic ore deposit.

Capital investment in the aluminum and rare metals industries will also be increased. These are new branches of the nonferrous industry for Kazakhstan.

NEW TIN DEPOSIT DISCOVERED -- Tashkent, Pravda Vostoka, 3 Jan 58

Up to the present, it had been assumed that deposits of nonferrous metals in the Far East were concentrated mainly in the Sikhote-Alin' Mountains, but recently, Soviet geological prospectors disproved this opinion. They discovered a new rich deposit of tin not in the mountains but in the spacious Prikhankayskaya lowlands, which have been developed for decades as an agricultural region.

The geological prospectors were followed by constructors and miners. In the center of the extensive plain there arose quickly a concentration factory, a mine, and secondary shops of the combine. On the eve of the new year, workers of the combine extracted and concentrated the first thousands of tons of the valuable ore.

POLYMETALLIC AND RARE ELEMENT DEPOSITS FOUND IN TADZHIKISTAN -- Stalinabad, Kommunist Tadzhiikistana, 12 Jan 58

During the period of the 5-year plans, new branches of the mineral extractive industry sprang up in Tadzhikistan. In northern Tadzhikistan the extraction of polymetallic deposits is in progress, including zinc, lead, tin, and copper and the rare elements, cadmium, bismuth, tungsten, and others, which are exploited in the Kara-Mazar and Mogol-Tau mountains. Mines and concentration plants are being constructed in central Tadzhikistan where fluorspar, antimony, arsenic, tungsten, and other metals are being extracted. In the high mountain regions of Pamir, which are difficult of access rock crystal deposits are being exploited which are necessary for the electrotechnical industry, and other nonmetallic and metallic deposits are being explored.

GOLD MINING TO BE ORGANIZED IN ARCTIC REGIONS -- Moscow, Trud, 19 Jan 58

Expeditions of geologists are making surveys and explorations of mineral deposits in the eastern part of the Arctic regions (beyond the Arctic Circle). Deposits of gold have been discovered here. The new deposits have supplies of industrial significance, and in one of them preparation is being made to organize the first placer mine in the Arctic regions.

SPECIAL FURNACES USED FOR ZINC CONCENTRATES -- Alma-Ata, Kazakhstanskaya Pravda, 11 Jan 58

Highly productive new techniques and progressive technology are being extensively introduced in the Ust'-Kamenogorsk Lead-Zinc Combine. Seven furnaces for roasting the concentrates in a fluidized bed were put in operation in the past 1 1/2 years. All the zinc concentrates will be roasted in such furnaces in 1958.

High productivity, economy, facility in tending, and the output of high-grade products are characteristic of fluidized-bed furnaces. Progressive technology requires of the furnaces new facilities and procedures in operation. All conditions have been created in the combine for the metallurgists to improve their qualifications, master outstanding work methods, and exchange experiences.

MINING TECHNIQUES HELP MINE ACHIEVE HIGH INDEXES -- Alma-Ata, Kazakhstanskaya Pravda, 18 Jan 58

The Maslyanskiy Mine is the largest enterprise of the Zyryanovsk Lead Combine. Workers of the mine fulfilled the 1957 plan 40 days ahead of schedule and delivered tens of thousands of tons of ore above the plan. The miners have achieved the level of labor productivity planned for the end of the 5-year plan and twice gained pre-eminence in all-union competition.

Extensive use of the system of large-scale block caving contributed to the achievement of their high production indexes. In 1957, almost all the ore was extracted by this method.

NEW TUNGSTEN MINE IN OPERATION -- Leningradskaya Pravda, 16 Jan 58

A new tungsten mine called 3-bis has been put in operation in the Ingichki mine field. This has led to such a great increase in ore extraction that construction of a new concentration mill has been started.

NEW ANTIMONY SHOP FOR KADAMDZHAY COMBINE -- Frunze, Sovetskaya Kirgiziya, 5 Jan 58

The plan for mining ore and extracting metal has been considerably increased over 1956 by the Kadamdzhay Mining and Metallurgical Combine. All sections of the combine are operating regularly. The workers have exceeded their quotas for mining ore, extracting, and smelting metal. The work indexes of the metallurgical plant were particularly good.

The miners have introduced many innovations in production during the year. A crushing department and a new shop for producing antimony are to be put in operation. An installation for concentrating ore is being tried out in the ore-dressing factory.

LARGEST BASE OF NONFERROUS INDUSTRY IN UZBEKISTAN AT HIGH ALTITUDE -- Moscow, Trud, 15 Jan 58

Several years ago, the largest base for the nonferrous industry in Uzbekistan was created at a height of 2,000 meters above sea level and was named the Altyn-Topkan Lead-Zinc Combine. This large enterprise is now supplied with the best equipment. It has a suspension cable road over which ore is delivered from the Altyn-Topkan Mine Administration to the concentrating mill.

LARGE-SCALE BLASTING USED IN MINING COPPER-MOLYBDENUM ORE -- Yerevan, Kommunist, 11 Jan 58

Miners of the Kadzharan Copper-Molybdenum Combine performed large-scale blasting operations after they had spent a long time preparing a large new block of ore for mining by the underground method. Nearly 280,000 tons of copper-molybdenum ore were brought down by blasting. This was the third large-scale blast in recent years.

COMBINE USES POWERFUL MODERN MACHINERY -- Yerevan, Kommunist, 22 Jan 58

Because of the use of powerful excavators, bulldozers, rock-loading machines, and other devices the Kadzharan Copper-Molybdenum Combine performed more than 1.5 million cubic meters of excavating work during 1957 and extracted hundreds of thousands of tons of ore.

COMBINE MINE INTRODUCES EFFICIENCY MEASURES -- Yerevan, Kommunist, 3 Jan 58

Workers of the Kadzharan Combine completed the plan for processing copper and molybdenum concentrates. Miners of the combine have finished preparing a large new section with extensive supplies of high-grade ore for mining by the underground method. Recently, they completed the cutting of the ore chute for transporting ore extracted by the open-pit method to the haulage level of the underground mine. This will free part of the motor dump trucks. A powerful modern excavator, the EKG-4, has been obtained which will permit an increase in ore mined by the open-pit method.

During 1957, engineers, technicians, and innovators have improved considerably the quality of the drilling and blasting operations and increased more than 20 percent the output per linear meter of the pit holes.

Miscellaneous

COPPER FOIL PROGRAM BADLY MANAGED -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 10 Jan 58

At the beginning of 1957, the Kyshtym Copper Electrolysis Plant was commissioned to develop the technology for preparing copper foil by an electrochemical method for radio-technical purposes. It was decided to build a shop for the production of foil.

However, the tempo at which the Kyshtym shop is being planned is clearly unsatisfactory. Two planning organizations are at work on this, the Giprotsvetmetobrabotka (State Institute for Planning of Nonferrous Metals Processing) and the Unipromed' [not further identified] institutes, which are thousands of kilometers distant from one another.

The planning is done blindly because the institutes only possess technological parameters of the process and some data on the production of nickel foil. Models of units of machines and of experimental models are not being tested. Unipromed' has, in general, discontinued planning of structural parts.

The situation regarding orders of equipment for the new shop is also unfavorable. These orders were distributed to various enterprises also located far from one another. The Dneprospetsstal' Metallurgical Plant was to cast special steel for the cathode drums and then deliver it to the Stalingrad Plant which was to prepare the drums. The faolite covering for the ends of these drums was to be produced in the Moscow Copper-Smelting and Copper-Electrolysis Plant. Special insulation and anticorrosion covering have not yet been ordered from anyone. It would be more suitable to have equipment for the shop prepared by one of the Ural plants.

The Gosplan USSR and the Chelyabinskiy Sovnarkhoz should pay serious attention to the production of copper foil, without which it is almost impossible to produce small-size and portable radio apparatuses and equipment.

MANGANESE ORE TRANSPORT STEPPED UP -- Tbilisi, Zarya Vostoka, 27 Jan 58

The start in operations of the Chiatura-Zestafoni broad-gauge railroad line and the opening of the new concentrating factory in Chiatura have raised the export of manganese ore to 1.3 times its former level.

V. COAL INDUSTRY

Production

FAIL TO MEET COAL COST GOALS -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 8 Jan 58

Many mines in the USSR have not fulfilled their cost-of-production goals. During the third quarter of 1957, mines in the Donbass and in the Irkutskiy and other sovnarkhozes failed in this endeavor. Furthermore, in many mines in Kemerovskiy, Tul'skiy, Ryazanskiy, Permskiy, Karagandinskiy, and other sovnarkhozes the per-ton cost of coal during a 9-month period in 1957 was higher than the average yearly cost of coal in 1956. The cause of this increase is the still inadequate attention given by mine managers to finances, and their tendency to fulfill the plan for coal output at any price.

In the coal industry, unlike other branches of industry, wages compose almost 60 percent of the production cost. For effective mine work labor productivity should precede increased wages. However, in 1957, in mines of the Georgian SSR, and in the Moscow, Pechora, Kizel, and Karaganda basins, the increase of wages preceded increased labor productivity. The experience of converting to the shorter day for underground workers in the Donbass has shown that there are considerable possibilities for increased labor productivity in the coal industry. They include combined trades [each miner able to do a number of jobs] and conversion to the brigade complex of work organization. In the Donbass this resulted in a higher level of productivity. In fact, the productivity levels were exceeded within a few months after the shorter-day plan went into effect.

In many mines, excessive expenditures for materials, fuel, and electric power are permitted because of insufficient control. Thus, the cost of these elements adds to the increased cost of coal. For example, in mines of the Voroshilovgradskiy and several other sovnarkhozes the expenditure of timbering materials exceeded the norms. In other mines, norms for explosives and metal supports are not observed, and there is above-norm wear and tear on ropes, cables, and instruments.

The 1958 plan demands that the sovnarkhoz managements pay attention to the quality indexes of work of the enterprises and the formulation and application of measures to secure the fulfillment of goals for increased labor productivity, decreased production expenditures, and increased profits. The new system of administration in industry and construction, which has brought management closer to the various enterprises, has opened great possibilities for the fulfillment of these goals.

PLAN FULFILLMENT -- Moscow, Pravda, 28 Dec 57

The 1957 plan for USSR coal output was fulfilled on 26 December, according to an announcement of the Central Statistical Administration.

Moscow, Trud, 28 Dec 57

In 1957, 462 million tons of coal were produced in the USSR.

Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 19 Jan 58

The Vakhrushevugol' Trust in the Ural Basin fulfilled its 1957 plan goals.

Moscow, Trud, 25 Jan 58

The miners of the Voroshilovgradskiy Economic Region in the Donbass exceeded their 1957 plan goals by 100,000 tons. A total of 21 mines were completed during 1957.

Tashkent, Pravda Vostoka, 12 Jan 58

Average daily output of coal in 1957 rose to 996 tons in the Uzbekugol' Combine in Angren.

Tbilisi, Zarya Vostoka, 25 Jan 58

The Donbassantratsit Combine in the Donbass exceeded its 1957 plan goals for coal output by more than 400,000 tons. Goals for 1958 call for 200,000 tons of coal over the plan, 101-percent fulfillment of mine development work, exceeding labor productivity goals by 2 percent, a 0.5-percent decrease in production costs, a 0.1-percent decrease in ash-content over established norms, the conversion of at least 60 percent of the stopes to the cyclic operations graph and the introduction of 100 narrow-bite complexes for coal extraction in mine stopes.

Alma-Ata, Kazakhstanskaya Pravda, 25 Jan 58

The 1958 plan goals for the Kazakh SSR provide for a production of 31.9 million tons of coal, 4 percent more than in 1957. The volume of investment in capital construction in the coal industry is to exceed the 1957 volume 17.4 percent. Facilities increasing mine capacities by 5,940,000 tons will begin operations. Investment will chiefly be in construction in Karaganda and on the Irtysh open pits on the Eki-bastuz deposit. Work will also begin on the construction of open pits in the Kushmurun deposit in Kustanayskaya Oblast.

Stalinabad, Kommunist Tadzhikistana, 25 Jan 58

The incidence of production injuries increased during the latter part of 1957 in the mines of the Tadzhikugol' Mine Administration, Tadzhik SSR. Studies have established the following reasons for these cases: insufficient attention to work protection and safety techniques and lack of regulation in mining and tunneling work.

Technology

COAL LOADER TESTED -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 12 Jan 58

Tests have been completed on the UP-2 hydraulic coal loader, the first of its type, developed and produced by the Kopeysk Machine Building Plant imeni Kirov.

Construction and Investment

NEW MINES AND MINING OPERATIONS -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 29 Dec 57

The first open pit in the Moscow Basin is under construction 6 kilometers from the mine city of Kimovsk. The mine is estimated to have a production capacity of 2 million tons a year. The buildings of an industrial combine and electric power substation have been built within a very short time, the overburden has been stripped, and the first level has been completed. The work was done by the Mosshakhtostroy (Moscow Mine Construction) Trust.

Minsk, Sovetskaya Belorussiya, 8 Jan 58

Mine No 16, with a planned production capacity of 300,000 tons a year, has begun mining operations in Delidovskiy Rayon of Tul'skaya Oblast in the Mosbass.

Moscow, Izvestiya, 12 Jan 58

Construction of Mine No 2 Bibikovskaya, which has a planned production capacity of 300,000 tons a year, has been completed in Tul'skaya Oblast.

Moscow, Trud, 29 Dec 57

Preparations are being made by mine builders of the L'vov-Volyn Basin to begin operations at a new mine in L'vovshchin on New Year's Eve. The mine has a planned production capacity of 450,000 tons a year.

Kiev, Pravda Ukrainy, 29 Dec 57

Mine No 2 Velikomostovskaya began mining operations in the L'vov-Volyn Basin on 24 December 1957.

Moscow, Trud, 29 Dec 57

Mine No 121, one of the largest in Kazakhstan, has begun mining operations. The mine has a planned production capacity of 3,500 tons of coking-quality coal a day. The mine was built by the Dolinshakhtostroy (Dolinsk Mine Construction) Trust and is the first enterprise which will supply coking coal to the Temir-Tau Metallurgical Combine, now under construction.

Moscow, Gudok, 14 Jan 58

Mine No 121, which has just begun mining operations in Karaganda, has a planned production capacity of 1.2 million tons a year.

Moscow, Komsomol'skaya Pravda, 11 Jan 58

Mine No 4, with a planned production capacity of 900,000 tons a year is north of Karaganda in a new coal basin.

Moscow, Trud, 21 Jan 58

Construction has begun on a second open pit at Ekibastuz in the Karaganda Basin.

Tashkent, Pravda Vostoka, 3 Jan 58

Mine Prigorodnaya has begun mining operations near Korkino in Chelyabinskaya Oblast in the Ural Basin.

Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 17 Jan 58

Three large mines are under construction in the Tentek coal deposit of the South Karaganda Coal Basin. The mines will have a daily planned production capacity of 9,000 tons of coking-quality coal. A total of 25 kilometers of railroad lines and 15 kilometers of highway have been laid. An electric power station is being constructed in the region of the new mines to supply electric power to homes and cultural and social centers. Tentek coal will supply the Karaganda Metallurgical Combine.

Moscow, Pravda, 4 Jan 58

Hydraulic Mine No 4, constructed by builders of the Podzemgidromekhanizatsiya (Underground Hydraulic Mechanization) Administration, began mining operations on New Year's Eve in the Donbass.

Moscow, Vechernaya Moskva, 3 Jan 58

The first hydraulic mine in the Donets Basin has begun operations under the Ordzhonikidzeugol' Trust. The mine has a planned production capacity of 500 tons of coal a day. Powerful pumps carry the coal from the mine 240 meters to the surface. A force of eight men per shift operate the various machines and equipment used to mine the coal and bring it to the surface.

Kiev, Pravda Ukrainy, 4 Jan 58

Surveying of the Kuuchekinsk area has revealed 20 seams, the largest being 22 meters thick. The construction of three open pits with an annual planned production capacity of 5 million tons is beginning. In 1958, motor vehicle and rail roads will connect Kuuchekinsk with nearby stations. A city for 30,000 miners is under construction not far from the pit location.

Alma-Ata, Kazakhstanskaya Pravda, 5 Jan 58

Kuuchekinsk coal is delivered to the Karagandinskaya GRES (State Regional Electric Power Station) in Kazakhstan.

PECHORA COAL CONSUMERS -- Moscow, Sovetskaya Rossiya, 3 Jan 58

The principal consumer of Pechora coal is the Leningradskiy Economic Region. Almost 50 percent of Pechora output goes to the oblast. The coal is also consumed in Arkhangel'sk, Vologda, Murmansk, Gor'kiy, and Cherepovets. Plans are being made to supply Pechora coal to the northern Urals. The Pechora, Severnaya, Kirovskaya, and Oktyabr'skaya railroad lines have converted to the use of Pechora coal.

COAL INDUSTRY IN KAZAKHSTAN -- Moscow, Geografiya v Shkole, No 1, Jan 58, pp 15-17, 29

A total of 15 new mines and an open pit have been planned for the Karaganda Coal Basin, including two mines. each of which will utilize hydraulic extraction of coal and have a planned capacity of 900,000 tons a year. The mines will be constructed in new areas. Only one mine will be built in the present industrial sector, the remaining mines will be in the areas of Tentek, Churubay-Nura, and other areas. Large mines are being laid in the rich coking-coal area of Tentek. An open-pit mine will be built on the surveyed Kuuchukinsk [probably Kuuchekinsk] deposit to the north of Karaganda, where 20-meter seams lie close to the surface. The pit will have a planned capacity of 3 million tons a year.

Reconstruction of existing mines in the basin will increase output 50 percent through the 5-year period.

A great amount of work is being carried out on the Ekibastuz deposit, whose reserves are estimated at several billion tons. The seams reach a thickness of 100-160 meters, lying in a syncline at depths varying from about half a kilometer to the very surface of the earth, thus making open-pit mining possible. At present, the Irtyskiy open pit, which began mining operations in 1954 with a planned capacity of 3 million tons a year, is undergoing reconstruction and when work is completed it will have a planned capacity of 6 million tons a year. At the same time, a second open pit will be built and by 1960 there will be two more. These pits will bring output in Ekibastuz up to 15 million tons a year. Ekibastuz is being transformed into an important USSR coal

basin and will be second in Kazakhstan. Ekibastuz coal, particularly the power-generating coal of the northeastern area of Kazakhstan and several neighboring oblasts of West Siberia, will be low in cost.

The South Siberian Railway, which connects the Urals with the lowlands of Irtysh and Altay, has opened the way for Ekibastuz coals to the northeast and, in particular, to the industrial areas of the Altay region.

The Maykuben and Kushmurun brown coal deposits are of great importance to the economy of Kazakhstan. Maykuben is 70 kilometers south of Ekibastuz, in Pavlodarskaya Oblast, while Kushmurun is 110 kilometers southeast of Kustanay in the Ubagan coal-bearing region. During the Sixth Five-Year Plan, the construction of an open pit with a production capacity of 5-6 million tons will begin in Maykuben; an open-pit will be built in Kushmurun with a production capacity of 3 million tons a year. Maykuben coal is easily gasified and therefore a large gas plant will be built to use the coal. The production of the plant will be conducted through pipelines to Pavlodar, Ekibastuz, and Yermak for industrial and domestic consumption.

Kushmurun coal, as well as the coals of neighboring deposits, will be imported into the regions of Chelyabinsk and Sverdlovsk of the central Urals following the construction of the Kustanay-Kushmurun Railway. Large electric power stations will be built in the Kustanay region on the basis of Kustanay coal. They will be the power basis for industrial development and supply power to agriculture as well. Their power will be transferred to the Urals and to Central Kazakhstan.

The mining city of Ubagan, to number 45,000 inhabitants, is being built at about 7 or 8 kilometers southeast of the Kushmurun station.

The prospects for the development of this section of the Kustanay region are very good. The output of coal at the Kushmurun deposit during the next 10 to 12 years will reach 15-20 million tons a year. The development of the Ekinsay and other deposits will begin during the Seventh Five-Year Plan. The output of the Ubagan deposits is expected to reach 30 to 40 million tons annually approximately by the end of the next three 5-year plans, and it will comprise an appreciable portion of the total USSR output which is expected to be 650-750 million tons.

COAL SUPPLY FOR URAL REGION -- Moscow, Promyshlenno-Ekonomicheskaya Gazeta, 15 Jan 58

The vigorous development of Urals industry, particularly ferrous metallurgy, has led to a considerable increase in demand for coal, with coking coal being first in demand. And the demand for this type of coal will rise from year to year.

The metallurgical plants being built and planned for construction in Kazakhstan will, to a great extent, use Kuznetsk coal. The increased smelting of pig iron will result in increased strain on the balance of Karaganda and Kuznetsk sintering coals, with the greatest strain in the scarcity of Zh fat coals.

The Urals do not have the sintering coals good for the production of blast-furnace coke. The deposits of power-generating coal amount to about 0.4 percent of the total, but the extraction of this coal amounts to approximately 12 percent of the total coal output of the USSR. At present, 20 percent of the coal consumed in the Soviet Union is used in Urals industrial enterprises and heat and electric power stations.

Even if the relative proportion of Urals coke consumption were to decrease and the extraction of local coals were to double, Ural area consumption of imported coal will reach 50 million tons annually in the near future. The importation of such a quantity of coal from the Kuznetsk, Karaganda, and Ekibastuz basins is not economically feasible. Moreover, the demand for fuel in Siberia and northern Kazakhstan is growing rapidly. In addition, unilateral transport in a western direction of such a quantity of coal would even burden the electrified railroad lines. The only solution is the supplying of the Urals metallurgical industry with Pechora coals, which are utilized at present in the western and northwestern areas of the country.

The reserves of Pechora coal are sufficient to completely cover consumption of sintering coals in any increase of pig-iron production in northern and central Urals plants; all that is needed is independent railroad passage for the coals to Sverdlovsk and Chelyabinsk.

At present, the main output is coming from the more extensively surveyed Vorkuta deposit, where fat coals predominate. The use of Pechora sintering coals in the north as power-generating fuel is not expedient and to establish such a practice now would be very difficult since under present conditions coal must travel over 2,400 kilometers to reach the Urals plants. Now is the proper time to plan for the

construction, during the 1959-1965 plan, of the East Ural Railroad which would connect the northern and central Urals plants with the Pechora Basin. An advantage of this railroad would be the connection between Pechora sintering coals and the magnetic iron-ore deposit of Yun'Yag.

Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 19 Jan 58

The Komi ASSR has enormous reserves of various grades of coal. Coal production in the republic has been rising constantly and now amounts to 16 million tons a year. However, part of the high-quality coking coal is used as power-generating fuel rather than in metallurgical plants. This is irrational from a national point of view. In the future, part of the coal will be consumed by the Chelyabinsk Metallurgical Plant and several other enterprises of the northwestern USSR. At the same time, it is possible for a considerable portion of this coal to be directed in the future to the use of the central Urals ferrous metallurgical plants in Permskaya and Sverdlovskaya oblasts.

The Komi ASSR deposits are located much closer to the metallurgical plants of the western and central Urals than the Kuzbass, from which the plants now obtain their coking coal supply. However, transport possibilities here are limited, and these difficulties should be eliminated.

CONSTRUCTION AND INCREASED CAPACITIES IN CENTRAL ASIA -- Moscow, Ugol', No 11, Nov 57, p 29

During the Sixth Five-Year Plan, seven mines with a total planned production capacity of 2.4-2.6 million tons a year are to be constructed. The mines scheduled to begin operations during the period are Samarkandek and Promezhutochnaya in Shurab, No 2 Severnaya in Tash-Kumyr, No 45-45 Sary-Bulak in Kok Yanyak, No 8 Sulyuktinskaya and No 1 Toguz in Lenger, and No 1-3 Shargunskaya in Angren. The Apartakskiy open pit in Angren will have a planned production capacity of one million tons a year, with a subsequent increase of its capacity to 3.5-4.5 million tons. In addition, the reconstruction of the No 1 Angrenskiy open pit and that of Mine No 8 in Shurab is planned. The capacity of the former will be increased to 4.5 million tons a year and that of the latter to 2,000 tons a day by 1960. The daily planned capacity of the Angrenskiy open pit will be increased to 3,000 tons by 1960.

Recently designed are six mines with a total annual planned production capacity of 2,350,000 tons. These include No 1 Dzhindzhingan in Kyzyl-Kiya, No 2 Toguz in Lenger, three mines in Kok-Yangak, and Dzhergalan in Kirgiziya. The total production capacity of these mines will be 7,650,000 tons a year.

The volume of investment during the period 1956-1960 will rise to 1,874,000 rubles, exceeding by almost 50 percent the value of the fixed assets of the Sredazugol' Combine as of 1 January 1956.

COMBINED MINE AND HYDROELECTRIC STATIONS -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 17 Jan 58

Mine No 8, now under construction in Tkvarcheli on the southern slopes of the main Caucasus range in a new mine field, will be the first combined mine and hydroelectric station in the USSR.

Designers of Gruzgiproshtakht (Georgia State Mine Planning Institute) have solved the problem of access to the coal in these areas, which have an abundance of rivers and frequent snowfalls which make stripping operations difficult, by planning two 6-kilometer galleries. The main gallery is for the conveyance of coal; the other is an auxiliary gallery.

Two shafts were sunk, one to 400 meters and the other to 200 meters, so as not to delay work. The shafts permit drifting operations on several faces simultaneously.

The Galidzga River flows at the surface of the mine and its waters are being used for the creation of an underground electric power station. The turbines of the GES (hydroelectric power station) will be in underground chambers connected with the auxiliary gallery, along which waste water from the GES will be discharged to the surface. Thus, in addition to the production of coal, the mine will produce cheap electricity.

Plans provide for the construction of a three-step GES. The first, underground, will be located near the coal seams; the second, also underground, will be located in the center of the gallery. The difference in levels between the gallery and the river will permit the utilization of waste water from the underground GES for the construction of a station on a third level.

The total capacity of the three hydroelectric power stations will amount to 30,000 kilowatts. Their cost of construction will be half that of constructing a conventional power station of the same capacity in Georgia.

[Comment: A previous article on this mine stated that there would be two hydroelectric stations.]

Prospecting

ACHINSK COAL CHEAPEST -- Moscow, Priroda, No. 10, Oct 57, pp 6-7

Extensive research has established that Achinsk Basin coal, estimated to exist in reserves of 80 billion tons, will be the cheapest in the USSR in the course of future 5-year plans. The cost of open-pit mining of the coal will be no more than 5 rubles a ton.

Frunze, Sovetskaya Kirgiziya, 1 Jan 58

The Tyulek-Markay coal deposit, located in Oktyabr'skiy Rayon of Dzhalsal-Abadskaya Oblast, has been surveyed. Its reserves are estimated to be 100 million tons.

Moscow, Gudok, 24 Dec 57

Geologists of the Kuzbassuglegeologiya (Kuznets Basin Coal Geology) Trust have discovered a deposit of PZh grade coking coal in the vicinity of Nikitinka village in Leninsk-Kuznetskiy Rayon. The deposit is composed of several thick and average-capacity seams and is estimated to have reserves exceeding one billion tons.

UBAGAN DEPOSIT -- Moscow, Geografiya v Shkole, No.1, Jan 58, p 29

The Ubagan brown coal deposit is composed of the Kushmurun, Kar'kov, Priozernyy, Eginsay, and other deposits, while the Priishim is composed of the Dzhyspay, Kysyl-tal' and other deposits. The coal is of the Jurassic period and is covered by a layer of later sedimentation which varies in thickness from several tens of meters to over 100 meters in some spots. The number of working seams in various deposits fluctuates from 2 or 3 to 8 or 10 or more. The thickness of the seams varies, in

some cases reaching 60 meters. A number of the deposits can be exploited completely or in part by the open-pit method. The Khar'kov deposit can be exploited only by the underground method.

The total Ubagan deposits are estimated to amount to 50 billion tons. Thus, they are very large in comparison with the basins of the Urals and compare with those of Karaganda.

VI. OTHER SOLID FUELS

Shale Production

USSR SHALE INDUSTRY -- Moscow, Ugol', No 11, Nov 57, pp 61-62

At present, more than 12 million tons of shale is extracted per year in the USSR. In 1960, production is planned to be at least 15 million tons. The entire contemplated rise in output, more than 4 million tons, will come from the Baltic area and will be obtained only from mines which were in operation during the Fifth Five-Year Plan.

Shale output must rise even more in the Seventh Five-Year Plan when the Pribaltiyskaya GRES (State Regional Electric Power Station), with a 600,000-kilowatt installed capacity, begins operations. Together with a number of other shale consumers, the station will increase the need to 21 million tons by 1965. Furthermore, with the probability of an expansion of the station to 1.2-million-kilowatt installed capacity, the demand for shale will rise to 25 million tons a year. This increase in output demands new operating capacities, and in 1958, construction will begin on Mine No 7, with a 1.2 million-ton-a-year capacity, and No 1 open pit, with a 4-million-ton-a-year capacity, in the Estonian SSR.

Labor productivity during the Sixth Five-Year Plan in the USSR shale industry must rise at least 35 percent over the previous plan level, while the per-ton cost must drop 20 percent. The open-pit method offers a satisfactory way to accomplish this, particularly in the Estonian SSR where there are favorable geological conditions for this method. Although this method yields higher productivity and lower costs, it is not yet used very extensively in Estonia. At present, only 3 percent of the total USSR shale production and 4 percent of the total Estonian production is extracted by this method. The reconstruction of the Vivikond open pit and the construction of new pits will permit an increase in the proportion extracted from open pits to 8 percent in 1960 and to 30 percent in 1965 for the USSR and 40 percent for the Estonian SSR.

Increased production capacities are a great factor in the rise of labor productivity. At present, average daily output in USSR shale mines is 2,300 tons, compared with 671 tons in 1950; and for the Estonian SSR output is 2,550 tons, compared with 1,361 in 1950. Eighty-five percent of the shale is extracted in mines with a daily production capacity of over 2,000 tons, and 45 percent in mines with a production capacity of

over 3,000 tons a day. The expansion of shale mines and pits will be continued in the coming years. In 1960, when 95 percent of the shale will be extracted in mines and pits with a productivity of more than 3,000 tons a day, the average output of shale for one mine will reach 2,700 tons and in 1965 this figure will rise to 3,200 tons a day.

Labor productivity in the shale industry has risen considerably as the result of the introduction of new systems of development, the mechanization of basic extraction processes, and the renovation of mining equipment and its improved utilization. The wide use of the room-and-pillar system in Estonian shale mines has replaced the use of the long-wall system with the extraction of adjoining faces. As a result, the portion of machine cutting in all stopes rose from 74.3 percent in 1950 to 97.3 percent in 1956. Mine transport, the rolling of mine cars to loading points, the drilling of blast holes, the loading of shale into railroad cars, and other processes are completely mechanized.

Of exceptional significance for the shale industry is the introduction of complex mechanization and new techniques of shale extraction. Because of the complicated seams of the Estonian and Leningrad deposits (which include layers of solid rock), as well as the necessity for sorting the blasted shale mass at the face, combines and loading machines which are used in coal mines cannot be utilized in the shale industry. Such labor-consuming work as loading of shale and rocks in preparatory faces is only 9 percent mechanized. Supporting of mine workings and transfer of conveyers in the faces is done by hand.

These shortcomings in the mechanization of basic extraction processes seriously endanger the further rise of labor productivity. To solve the problem, Mine No 2 of the Estonian Trust in 1957 carried out the industrial testing of two new systems of development with mechanized loading of shale: the layer system with the extraction of shale by cutter-loading machines and the room system with the use of loading machines. The most acceptable of the two will thus be ascertained. Also projected is the testing of a large-capacity integrated scraper-conveyer with mechanized shifting in combination with metal supports and hinged girders.

There is much to be done in the area of mechanization of work in support installations and the supporting of worked-out space, the introduction of new types of supports in stope faces, particularly those which have been mechanized. In 1960 it will be necessary to complete the conversion of all faces to metal supports and expand the application of anchor-type supports, which have been successfully introduced in shale mines, as well as to mechanize the process of their erection.

In connection with the mechanization of loading, it will be necessary to change the technology of extracting shale and convert from selective to complete mining. At the same time, mechanical concentration of the mined material must be introduced. At present, this is done manually and as a consequence, complete mining is not possible. During the 1958-1959 period, a pilot concentration plant will be built at Mine No 10 of the Estonian Trust, and plans for the most advantageous mechanical method of concentration will be developed on the basis of test results.

More serious attention will be given to problems of the complex mechanization of surface operations and broad automation of conveyor lines, hoists, ventilators, and other installations. The shale industry is only on the first step in this particular area.

The first step in the complex mechanization of shale extraction is the creation and utilization of specialized machines which answer the specific conditions of development in shale deposits. In this connection, the construction institutes, which have developed many remarkable machines for the coal mines, have given no attention whatsoever to the needs of the shale industry.

The introduction of the cyclic graph of operations has played an important role. At present, 70 percent of the total number of faces work according to this graph, which was introduced in shale mines in 1951. In recent years, the demand for Estonian shale has risen in the Latvian, Lithuanian, and Belorussian republics and in Leningradskaya and Pskovskaya oblasts, which import more than 2.5 million tons annually. However, shale still makes up a very small portion of the fuel balance of these republics and oblasts, for they annually consume more than 18 million tons of coal, a considerable part of which could be replaced by shale. Calculations indicate that the use of Estonian shale in the northwestern areas of the country is more advantageous than the use of coal imported over long distances. For Leningradskaya Oblast a ton of Estonian shale, in terms of conventional fuel, is 25-30 percent cheaper than Donbass coal and half the cost of Pechora coal. Even more effective is the use of shale at the place of extraction and its transport to consumers of electric power and gas. Directives of the 20th Congress of the CPSU call for broader use of local raw materials and fuel resources; the use of local raw materials and fuel resources; the use of Estonian shale will release millions of tons of coal for other uses.

At present, waste products obtained during shale extraction and processing remain almost unused, whereas they could be used in the organized production of construction materials. The industrial development of the complex processing of shale will make possible the production of great quantities of fertilizers and a number of valuable chemical products.

UNDERGROUND GASIFICATION OF SHALE IN ESTONIA -- Tallin, Sovetskaya Estonia, 7 Jan 58

The problem of the underground gasification of shale is being successfully solved through the combined efforts of Soviet scientists and producers. Millions of tons of low-calorie shale remain underground during mining operations each year, the proportion running as high as 50 percent.

In the Estonian SSR, concrete methods of underground gasification are being developed in two basic forms. One is combined underground thermal processing with mine extraction, and the other is mineless extraction of the shale by underground gasification with complete exclusion of underground work.

(The article goes on to discuss work which has been done in this field and present efforts to build a testing installation.)

KOKHTLA-YARVE TO HAVE ADDITIONAL SHOPS -- Moscow, Promyshlennno-Ekonomicheskaya Gazeta, 26 Jan 58

Building has begun on several large new shops for the large shale-processing combine of Kokhtla-Yarve. The shops will permit a broader assortment of chemical products from shale.

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